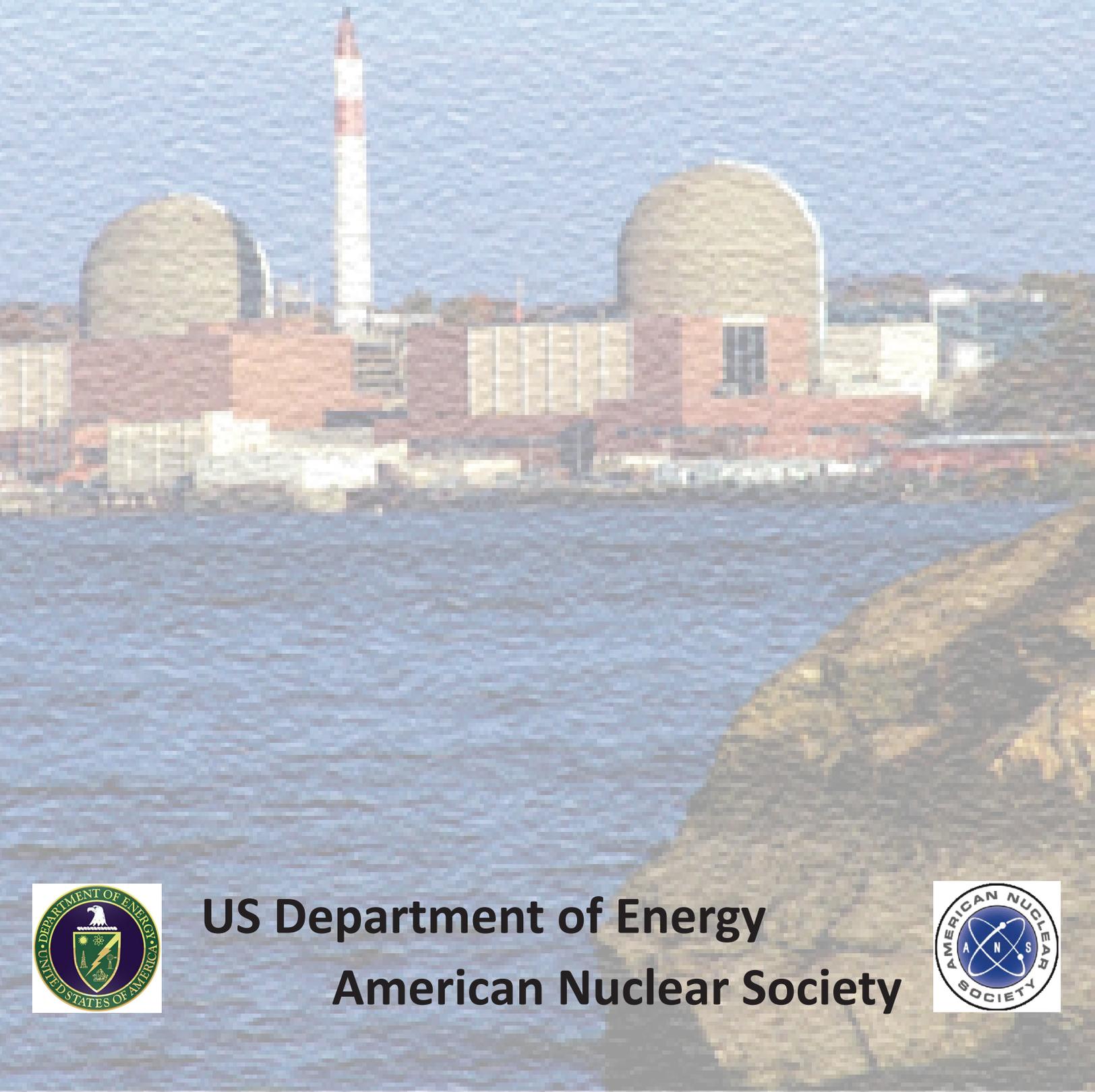


Nuclear Science & Engineering Education Sourcebook 2011



**US Department of Energy
American Nuclear Society**



Nuclear Science & Engineering Education Sourcebook 2011

**North American
Edition**

**American Nuclear Society
Education, Training, and Workforce Division**

**US Department of Energy
Office of Nuclear Energy**

**Editor and Founder
John Gilligan
Professor of Nuclear Engineering
North Carolina State University**

Version 4.11

Front Cover Photo - Indian Point Energy Center, U.S. NRC Website Photo Gallery

Welcome to the 2011 Edition of the Nuclear Science and Engineering Education (NS&EE) Sourcebook. We have evolved and improved! The core mission of the Sourcebook has not changed, however. Our purpose is to facilitate interaction among faculty, students, industry, and government agencies to accomplish nuclear research, teaching and service activities. Since 1986 we have compiled critical information on nuclear engineering enrollments, degrees, and faculty expertise in printed and electronic formats.

With the expansion of nuclear energy activities since our last edition in 2007, we will now include select science faculty and programs that are relevant to nuclear energy production and use. For example this includes radiochemistry programs focused on nuclear fuel cycle problems. Hence, the expansion of our title includes "Science".

We have gone to a new web based input format that allows quick changes (updated twice per year) to the Sourcebook and the capability to do ranking and sort manipulations in a spreadsheet environment as the data is displayed. Of course we will publish a PDF version of the Sourcebook and distribute printed copies as needed at least one every other year. This year we will also include programs that are new and growing, which might include undergraduate curricula with a nuclear energy minor or graduate programs that offer a track or certificate option. We will list only faculty involved in the nuclear options in all of these cases. In general we list faculty that have at least a budgeted 25% appointment in nuclear activities.

Other nuclear energy or related programs can be found under the listings for the ANS Student Branches and University Reactors. The Sourcebook data will be placed on the web at the Nuclear Energy University Programs (NEUP) site at the Idaho National Laboratory. Copies of the Sourcebook will be distributed to academic Department Heads, and libraries, as well as key industry, society and government officials. A limited number of extra printed copies can be requested in cases where web access is limited or inconvenient.

The Sourcebook is a publication by the Education, Training and Workforce Division of the American Nuclear Society with the support of the Department of Energy, Office of Nuclear Energy. Appreciation is expressed to the Executive Committee of the ETWD of the ANS for their encouragement for this project. Special thanks go to the NEUP Integration Office at the Idaho National Lab for providing support and a web site home for the NS&EE Sourcebook. We would also like to acknowledge the diligent work of Ms. Sherry Bailey for accumulating the Sourcebook information and for maintenance of the Sourcebook website. I would also like to thank the previous Co-Editors of the Sourcebook over the years who have kept the Sourcebook alive and well: K. Verghese, K.L Murty, and M.S. Yim, all of NC State University.

We are excited to present the 2011 Edition of the NS&EE Sourcebook (Version 1.11) available in PDF file format and on the web at www.neup.gov (About Us→Related Documents).

To update information, please contact Ms. Sherry Bailey (sbbailey@ncsu.edu or 919-515-1897).

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Table of Contents	
UNIVERSITY OF CALIFORNIA-BERKELEY	3
COLORADO SCHOOL OF MINES	7
ÉCOLE POLYTECHNIQUE DE MONTRÉAL	9
UNIVERSITY OF FLORIDA	11
GEORGIA INSTITUTE OF TECHNOLOGY	13
UNIVERSITY OF IDAHO	19
IDAHO STATE UNIVERSITY	21
UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN	25
KANSAS STATE UNIVERSITY	29
UNIVERSITY OF MARYLAND	31
MASSACHUSETTS INSTITUTE OF TECHNOLOGY	33
UNIVERSITY OF MASSACHUSETTS, LOWELL	39
McMASTER UNIVERSITY	41
UNIVERSITY OF MICHIGAN	43
UNIVERSITY OF MISSOURI, COLUMBIA	53
MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY	55
US NAVAL ACADEMY	59
UNIVERSITY OF NEW BRUNSWICK	61
UNIVERSITY OF NEW MEXICO	63
NORTH CAROLINA STATE UNIVERSITY	65
OHIO STATE UNIVERSITY	69
OREGON STATE UNIVERSITY	73
PENNSYLVANIA STATE UNIVERSITY	77
UNIVERSITY OF PITTSBURGH	81
PURDUE UNIVERSITY	85
RENSELAER POLYTECHNIC INSTITUTE	87
UNIVERSITY OF SOUTH CAROLINA	91
SOUTH CAROLINA STATE UNIVERSITY	93
UNIVERSITY OF TENNESSEE, KNOXVILLE	95
TEXAS A&M UNIVERSITY	99
UNIVERSITY OF TEXAS, AUSTIN	103
UNIVERSITY OF UTAH	107
UTAH STATE UNIVERSITY	109
VIRGINIA COMMONWEALTH UNIVERSITY	111
UNIVERSITY OF WISCONSIN, MADISON	113
ANS STUDENT SECTION	119
RESEARCH TRAINING AND FISSION REACTORS IN NORTH AMERICA	125
FACULTY INDEX	129

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	18	17	14	14
Masters	10	14	9	14
PhD	7	13	5	6

Graduate Student Enrollment: 11 Masters/50 Ph.D.

ABET Accreditation: BS degree in Nuclear Engineering, BS degree in Nuclear Engineering and Mechanical Engineering, BS degree in Nuclear Engineering and Material Science Engineering, BS degree in Electrical Engineering and Computer Science and Nuclear Engineering, BS degree in Chemical Engineering and Nuclear Engineering

Nuclear Science and Engineering Faculty

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Ph.D., UC Berkeley, 1988. High-temperature fission and fusion energy systems; topics related to the safety and security of nuclear materials and waste management: heat transfer; fluid mechanics; regulation and licensing for high temperature reactors, principally designs that use liquid fluoride salts as coolants. Website: http://www.nuc.berkeley.edu/People/Per_Peterson

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Mathematical analyses of radionuclide transport in heterogeneous geologic formations and of radionuclide release from man-made waste disposal systems; overall performance assessment models and analysis of the nature of uncertainty incorporated in long-term assessments for radioactive waste disposal. Website: http://www.nuc.berkeley.edu/People/Joonhong_Ahn

Peter Hosemann, Assistant Professor (510-642-5341) [peterh@berkeley.edu] Dr., Montanuniversitaet Leoben, Austria, 2008. Small scale materials testing on irradiated and unirradiated structural materials for nuclear applications; investigating new advanced structural materials concepts (e.g. oxide dispersion strengthened steels) for nuclear applications using accelerated materials testing via ion beam irradiations; liquid metal corrosion of structural materials for nuclear applications. Website: http://www.nuc.berkeley.edu/People/Peter_Hosemann

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Ph.D., University of Illinois, Urbana-Champaign, 1979. Fusion reactor design and applied plasma physics, experimental investigation of RF plasma heating; rotating target neutron source at UC Berkeley; experimental studies of compact toroids; a spectral method for magnetohydrodynamic stability. Website: http://www.nuc.berkeley.edu/People/Edward_Morse

Eric B. Norman, Professor (510-643-9984) [ebnorman@lbl.gov] Ph.D., University of Chicago, 1978.

Developing active neutron-based interrogation system to screen sea-going cargo containers for fissionable material; Cryogenic Underground Observatory for Rare Events (CUORE) – a planned large-scale bolometric detector designed to search for the neutrinoless double beta decay of ^{130}Te ; measurements of neutron and charged-particle induced reaction cross sections for homeland security, nuclear astrophysics, and neutrino physics.

Website: http://www.nuc.berkeley.edu/People/Eric_Norman

Donald R. Olander, Professor in the Graduate School (510-642-7055) [fuelpr@nuc.berkeley.edu] Sc.D., MIT, 1958. High-temperature kinetic and thermodynamic behavior of nuclear reactor fuels; performance of degraded nuclear fuels.

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Stanley G. Prussin, Professor in the Graduate School (510-642-5274) [prussin@berkeley.edu] Ph.D.,

University of Michigan, 1964. Low energy nuclear physics and the use of nuclear methods and instrumentation for solving applied problems: oxidation of spent nuclear fuel; radial dependence of burnup and actinide production in irradiated UO_2 ; radiation safety in large central radiopharmacies; development of a nuclear medicine procedure for breast cancer; benchmark measurements of delayed fission product gamma rays; investigation of delayed fission gamma rays as a robust signature for nuclear materials in sea-going cargo containers.

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Jasmina L. Vujic, Professor (510-642-8085) [vujic@nuc.berkeley.edu] Ph.D., University of Michigan,

1990. Numerical methods in reactor physics, neutron and photon transport, reactor core design and analysis, shielding and radiation protection, biomedical application of radiation, optimization techniques for vector and parallel computers: neutronics analysis of fissile material behavior in geologic repositories; computer modeling for radiation diagnostic and cancer therapy; development of multiprocessor multiassembly neutron transport theory code; development and validation of the GT-SCALE code package for advanced reactor core designs; development of a unified multidimensional computational method for neutral particles in complex non-uniform domains.

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Other Faculty

Ehud Greenspan, Professor in Residence (510-643-9983) [gehud@nuc.berkeley.edu] Ph.D., Cornell University, 1966. Generation IV reactors - conception and analysis of advanced nuclear reactors; transmutation - minimization of nuclear waste as well as the disposition of nuclear waste and the

closing of the nuclear fuel cycle; Advanced fuel cycles for improving proliferation resistance and nuclear fuel utilization; as well as development of automated nuclear design optimization methods and their application in the areas of criticality safety, boron neutron capture therapy, radiation shields, and fusion energy systems. Website: http://www.nuc.berkeley.edu/People/Ehud_Greenspan

Daniel M. Kammen, Professor (510-643-2243) [kammen@socrates.berkeley.edu]

Ph.D., Princeton University, 1988. Science and technology policy focused on energy, development and environmental management; technology and policy questions in developing nations, particularly involving: the linkages between energy, health, and the environment; technology transfer and diffusion; household energy management; renewable energy; women; minority groups; global environmental change including deep cuts in greenhouse gas emissions and resource consumption; environmental and technological risk; Management of innovation and energy R&D policy. Geographic expertise: Africa; Latin America. Website: http://www.nuc.berkeley.edu/People/Daniel_Kammen

William E. Kastenber, Professor Emeritus (510-643-0574) [kastenbe@nuc.berkeley.edu] Ph.D., UC Berkeley, 1966. Ethical issues in emerging technologies, risk assessment and risk management for technological and natural complex systems, nuclear reactor safety, environmental risk analysis, environmental conflict resolution. Website: http://www.nuc.berkeley.edu/People/Bill_Kastenber

Ka-Ngo Leung, Professor in Residence (510-486-7918) [knleung@lbl.gov] Ph.D., UCLA, 1975. Plasma and Ion Beam technology in microfabrication processes: maskless ion beam lithography technology as candidates for next generation lithography (NGL) that will be used to produce feature sizes of 100 nm and below; focused ion beam (FIB) systems equipped with plasma ion sources; compact neutron tube with rf plasma ion source. Website: http://www.nuc.berkeley.edu/People/Ka-Ngo_Leung

John P. Verboncoeur, Visiting Professor (510-642-3477) [johnv@nuc.berkeley.edu]

Ph.D., UC Berkeley, 1992. Computational plasma physics, treating collisional and collisionless plasmas as well as bounded plasmas, both electrostatic and electromagnetic: high temperature plasmas such as hot fusion; low temperature discharges for lighting and materials processing; electron and ion beams for heavy ion fusion, propulsion, accelerators, and lithography; microwave beam devices for plasma heating, radar, and electronic warfare; basic plasma physics, including instabilities and plasma-surface interactions; numerical methods. Website: http://www.nuc.berkeley.edu/People/John_Verboncoeur

Kai Vetter, Associate Professor in Residence (510-642-7071) [kvetter@nuc.berkeley.edu] Ph.D., J. W. Goethe-University, Frankfurt, 1995. Development and demonstration of new and/or improved gamma-ray (and neutron) imaging concepts for applications ranging from homeland security and nuclear non-proliferation to biomedical imaging; search for neutrino-less double-beta decay in ^{76}Ge to obtain better understanding on fundamental properties of neutrinos to answer fundamental questions; developing and demonstrating new and improved concepts in Ge detector technologies to provide unprecedented capabilities in observing rare decays or rare interactions; basic nuclear physics experiments and associated instrumentation to better understand the basic structure of nuclei. Website: http://www.nuc.berkeley.edu/People/Kai_Vetter

Brian D. Wirth, Visiting Professor (510-642-5341) [bdwirth@nuc.berkeley.edu]
Ph.D., UC Santa Barbara, 1998. Multiscale materials dynamics: radiation effects on materials in nuclear fission and fusion energy environments, high strain rate deformation and the fundamental relationships between microstructure evolution and mechanical behavior.
Website: http://www.nuc.berkeley.edu/People/Brian_Wirth

Nuclear Science and Engineering Research Centers

Berkeley Nuclear Research Center: The principal focus of the center is to address critical sustainability issues for the nuclear fuel cycle with the specific objectives of: enabling human capital Development for the next generation of nuclear scientists and engineers; creating knowledge and information to inform national policy decisions; fostering international collaborations; fostering campus - national laboratory collaborations; attracting resources and building R&D capabilities.

COLORADO SCHOOL OF MINES

Nuclear Science and Engineering Program

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	0	0	0	0
Masters	0	0	1	1
PhD	0	0	0	0

Graduate Student Enrollment: 14 Masters/9 Ph.D.

Nuclear Science and Engineering Faculty

Jeffrey C. King, Assistant Professor and Interim Program Chair (303-384-2133) [kingjc@mines.edu] Ph.D., Nuclear Engineering, University of New Mexico, 2006. Reactor physics and design; neutron imaging; nuclear materials. Website: <http://www.mines.edu/~kingjc>

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David Leroy Olson, John H. Moore Distinguished Professor of Physical Metallurgy (303-243-3955) [dolson@mines.edu] Ph.D., Cornell University, 1970. Actinide metallurgy; liquid metal coolants; material compatibility; beryllium; nuclear joining and casting; QNDT. Professional Engineer.

Other Faculty

Linda Figueroa, Associate Professor (303-273-3491) [lfiguero@mines.edu] Ph.D., University of Colorado at Boulder, 1989. Bioremediation of radionuclides and metals. Professional Engineer. Website: <http://ese.mines.edu/people/faculty/figueroa.html>

Jen Schneider, Assistant Professor, Liberal Arts and International Studies (303-273-3628) [jjschnei@mines.edu] Ph.D., Claremont Graduate University, 2004. Science, environmental, and risk communication; engineering education; sustainable community development. Website: <http://lais.mines.edu/profiles/schneider.htm>

Zeev Shayer, Research Professor (303-273-3037) [zshayer@mines.edu] Ph.D., Tel-Aviv University, Israel, 1985. Advanced fuel cycle and new reactor concept design; thermal hydraulics; radiation physics; dose rate and material degradation assessments; criticality safety analysis; probability risk assessment and reliability analysis; nuclear waste transmutation and compaction; low energy nuclear physics; computational methods in engineering and science. Professional Engineer. Website: <http://physics.mines.edu/people/phpfiles/shayer.php>

Nuclear Science and Engineering Research Centers

Nuclear Science and Engineering Center (NuSEC) - Coordinates nuclear science and engineering research across campus and maintains the CSM nuclear science and engineering laboratory facilities located adjacent to the GSTR.

Geological Survey TRIGA Reactor (GSTR) - 1 MW thermal TRIGA reactor located on the Denver Federal Center, approximately 10 minutes from campus.

Active Materials Characterization Laboratory (ActMCL) - Provides materials synthesis and characterization capabilities for radioactive materials. Located adjacent to the GSTR. Capabilities include scanning electron microscopy, transmission electron microscopy, optical microscopy, x-ray diffraction, x-ray nano-computed tomography, and neutron radiography and computed tomography.

ÉCOLE POLYTECHNIQUE DE MONTRÉAL

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Graduate Student Enrollment: 25 Masters/10 Ph.D
ABET Accreditation: Ph.D., M.Sc.

Nuclear Science and Engineering Faculty

Alain Hébert, Professor (514-340-4711 x 4519) [alain.hebert@polymtl.ca] Ph.D., Paris-XI, 1980. Reactor Physics; lattice code; neutron diffusion theory. Professional Engineer.

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Alberto Teyssedou, Professor (514-340-4711 x 4522) [alberto.teyssedou@polymtl.ca] Ph.D. Ecole Polytechnique de Montreal, 1987. Diphasic flow; thermodynamics; supercritical flows.

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	21	14	23	23
Masters	17	24	18	13
PhD	4	8	12	6

Graduate Student Enrollment: 31 Masters/30 Ph.D.

ABET Accreditation: Nuclear Engineering (BS)

CAMPEP Accreditation: Medical Physics (MS & PhD)

Nuclear Science and Engineering Faculty

David Hintenlang, Professor and Chair (352-392-1401 x 352) [dhinten@ufl.edu] Ph. D., Brown University, 1987. Clinical medical physics applications of radiation imaging and dosimetry; techniques to accurately quantify and minimize pediatric, CT, and mammography doses and optimization of image quality.

Wesley E. Bolch, Professor (352-392-1401 x308) [wbolch@ufl.edu] Ph. D., University of Florida, 1988. External and internal radiation dosimetry; computational medical physics; development of patient-specific anatomic models for organ dose assessment in radiology and radiation therapy; skeletal dosimetry; emergency response to radiological terrorism. Professional Engineer.

David R. Gilland, Associate Professor (352-846-3066) [gilland@ufl.edu] Ph. D., University of North Carolina-Chapel Hill, 1989. Medical imaging using positron emission tomography and single photon emission computed tomography; novel instrumentation and image reconstruction methods for dynamic cardiac imaging; analysis of image quality using human observer models.

Mark J. Harrison, Assistant Professor (352-392-1401 x 317) [mark.harrison@ufl.edu] Ph. D., Kansas State University, 2009. Radiation detection; semiconductor and scintillator crystal growth; numerical methods; including Monte Carlo methods; heat transfer; machine controls.

DuWayne L. Schubring, Assistant Professor (352-392-1401 x 314) [dlschubring@ufl.edu]
Ph. D., University of Wisconsin-Madison, 2009. Two-phase flow, quantitative visualization; nuclear reactor safety; computational/numerical methods including coupled codes; advanced nuclear power systems.

Yong Yang Assistant Professor (352-392-1401) [yyang@ufl.edu] Ph.D., University of Wisconsin-Madison, 2005. Structural, fuel cladding and fuel materials for innovative nuclear systems and light water reactors; all material related issues including radiation damage, evaluation of life extension of existing reactors and material selection for advanced nuclear reactor designs.
Website: www.nre.ufl.edu

Nuclear Science and Engineering Research Centers

Advanced Laboratory for Radiation Dosimetry Studies (ALRADS): Dr. Wesley Bolch, Director. Performs high performance computing and Monte Carlo simulation for external and internal radiation dosimetry, computational medical physics, utilizing patient-specific anatomic models for organ dose assessment.

Advanced Nuclear Fuel (ANF) Laboratory: Professor James Tulenko. Empirical base evaluation and development of advanced nuclear fuels and related materials.

Particle Transport and Distributed Computing (PTDC) Lab: Dr. Alireza Haghghat, Director. High performance, parallel computing of large scale particle and radiation transport problems.

Progress Energy Advanced Radiation Detection (PE-ARDAD) Lab: Provides an opportunity for undergraduate and graduate students in the department to learn about and operate various radiation detectors, detector systems, and their associated electronics. Other non-destructive testing equipment are also available for investigative/educational purposes.

Radiography by Selective Detection (RSD) of Backscattered X-rays Lab: X-ray backscatter imaging for a wide variety of industrial applications focused on non-destructive testing in aerospace and medical applications.

Visualization, Imaging, and Computation for the Thermohydraulics of Reactors (VICTR): Dr. Duwayne Schubring. Advanced visualizations of annular two-phase flow with planar laser-induced fluorescence (PLIF) and high-speed video and coupled neutronics/TH with 3D neutron transport and 3D computational fluid dynamics.

University of Florida Training Reactor (UFTR): Dr. David Hintenlang, Interim Director. A 100 kW reactor used for training and demonstration, including the design licensing and construction of a fully digital control and safety system.

GEORGIA INSTITUTE OF TECHNOLOGY

Nuclear and Radiological Engineering and Medical Physics Programs

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	14	25	32	27
Masters	27	25	24	21
PhD	5	1	1	8

Graduate Student Enrollment: 44 Masters/30 Ph.D.

ABET Accreditation: B.S.N.R.E.

CAMPEP Accreditation: M.S.M.P. and Ph.D. NRE – MP option

Nuclear Science and Engineering Faculty

Farzad Rahnema, Professor and Chair of the Nuclear and Radiological Engineering and Medical Physics Programs (404-894-3731) [farzad@gatech.edu]; Ph.D., University of California, Los Angeles, 1981. Radiation transport theory; reactor physics; computational medical physics; perturbation and variational methods.

Said I. Abdel-Khalik, Southern Nuclear Distinguished Professor (404-894-3719) [said.abdelkhalik@me.gatech.edu]; Ph.D., University of Wisconsin-Madison, 1973. Reactor thermal-hydraulics; reactor operations; reactor safety; fusion technology.

Laurent Capolungo, Assistant Professor (+1133 3 87 20 39 49) [laurent.capolungo@me.gatech.edu] Ph.D., Georgia Institute of Technology, 2007. Computational material science; multi-scale modeling; materials processing; constitutive laws; and material deformation.

Mohammed Cherkaoui, Professor (404-894 -8336)[mohammed.cherkaoui@me.gatech.edu] Ph.D., University of Metz, France, 1995. Micro and nanomechanics; multiscale transition methods; crystal plasticity; behavior of materials with high strength and ductility; phase transformation; and smart materials.

Sang Hyun Cho, Associate Professor (404-385-1301) [scho@gatech.edu]; Ph.D., Texas A&M University, 1997. Radiotherapy physics; cancer imaging; nanotechnology.

Seung-Kyum Choi, Assistant Professor (912-966-6771) [seungkyum.choi@me.gatech.edu]; Ph.D., Wright State University, 2006. Probabilistic risk assessment; reliability-based design; multidisciplinary design optimization; and decision support method.

Chaitanya S. Deo, Assistant Professor (404-385-4928) [chaitanya.deo@nre.gatech.edu] Ph.D., University of Michigan, 2003. Structure property relationships in nuclear materials; theory and simulations across electronic; atomic, mesoscopic and continuum scales. Radiation effects in materials for nuclear energy including structural materials and nuclear fuels identifying atomic mechanisms in defect mobility and interaction in crystalline solids and modeling the collective evolution of defects

Srinivas Garimella, Professor (404-894-7479) [srinivas.garimella@me.gatech.edu] Ph.D., The Ohio State University, 1990. Heat transfer; thermal-hydraulics; microchannel phase change.

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Nolan E. Hertel, Professor (404-894-3601) [nolan.hertel@nre.gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 1979. Radiation spectrometry; transport; dosimetry and shielding; radiation detector simulations and design; neutron measurements and applications; computational dosimetry; radiation protection. Professional Engineer.

Bojan Petrovic, Professor (404-894-8173) [bojan.petrovic@gatech.edu] Ph.D., The Pennsylvania State University, 1995. Reactor physics; transport theory; shielding; Monte Carlo methods; advanced reactor design; nuclear fuel cycle; numerical simulations of nuclear systems.

Glenn E. Sjoden, Professor (404-894-5733) [glenn.sjoden@nre.gatech.edu] Ph.D. The Pennsylvania State University, 1997. Particle transport and numerical methods; nuclear systems analysis: power generation; defense programs; NDT; detection; and medical application; convective heat transfer; computational fluids; and high performance computing applications. Professional Engineer.

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C-K Chris Wang, Professor (404-894-3727) [chris.wang@nre.gatech.edu] Ph.D., The Ohio State University, 1989. Radiation physics; detection; protection and dosimetry; micro- and nano-dosimetry; radiobiological modeling; radiation biology; and radiotherapy modalities using neutrons. Professional Engineer.

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Adjunct Faculty Affiliated with the Medical Physics Program

Zongjian (Z.J.) Cao, Professor of Radiology, Medical College of Georgia and Co-director of Medical Physics, MCG Health Inc., Adjunct Professor at Georgia Tech [zcao@mail.mcg.edu] Ph.D., Indiana University, 1986. Certified by the American Board of Science in Nuclear Medicine 1995.; single photon emission computed tomography (SPECT); positron emission tomography (PET); PACS; internal dosimetry estimation.

Anees Dhabaan, Assistant Professor of Radiation Oncology and Director of Medical Physics Residency Program, Emory University School of Medicine; Adjunct Assistant Professor at Georgia Tech (404-778-3535) [anees.dhabaan@emory.edu]; Ph.D., University of Birmingham, England, United Kingdom, 1994. Diplomate, American Board of Radiology 2003; head physicist for the stereotactic radiosurgery program at Emory University. Neutron and photon transport and the use of Monte Carlo method in dense media; clinical services including implementing new technologies.

Eric S. Elder, Assistant Professor of Radiation Oncology and Director of Clinical Medical Physics, Emory University School of Medicine, Adjunct Assistant Professor at Georgia Tech (404-778-2304) [eric@radonc.emory.org]; Ph.D., Georgia Institute of Technology, 1997. Certified by the American Board of Radiology – Therapeutic Radiologic Physics 1997; image-guided radiation therapy (IGRT) methods; endovascular brachytherapy.

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Tom C.-C. Hu, Project Officer, The Biomedical Advanced Research and Development Authority (BARDA), within the Office of the Assistant Secretary for Preparedness and Response (ASPR) in the U.S. Department of Health and Human Services (HHS) [tom.hu@hhs.gov] Part-Time Assistant Professor of Radiology and Founding Director of Small Animal Imaging Program, Medical College of Georgia; [thu@mail.mcg.edu]; Adjunct Assistant Professor at Georgia Tech; Ph.D., Carnegie Mellon University, 2001; MBA, Villanova University, 2005. Non-invasive magnetic resonance imaging (MRI) in small animals.

Nasser Maleki, Director of Medical Physics, Memorial Health University Medical Center, Adjunct Professor at Georgia Tech (912-350-8490) [malekna1@memorialhealth.com]; Ph.D., University of Nebraska, 1981. Diplomat, American Board of Radiology 1988. Stereotactic radiosurgery; internal organ motion during radiation treatment; quality management in radiation treatment; software development for standardization of medical physics practice.

Other Faculty

William J. Wepfer, Eugene C. Gwaltney, Jr. Chair of the Woodruff School and Professor (404-894-3200) [bill.wepfer@me.gatech.edu] Ph.D., University of Wisconsin-Madison, 1979. Heat transfer; energy systems; and fuel cells.

Armin Ansari, Adjunct Associate Professor; Health Physicist, Radiation Studies Branch, Centers for Disease Control and Prevention (770-488-3654) [AAnsari@cdc.gov]; Ph.D., University of Kansas, 1989; radiation emergency preparedness and response; radiation biology; internal dosimetry.

Dwayne Blaylock, Manager NRE/MP laboratories and Research Engineer II (404-894-3606) [dwayne.blaylock@nre.gatech.edu] M.S. Nuclear Engineering, Georgia Institute of Technology, 1997. Radiation physics; computer modeling; reactor physics; modeling of activation and spallation products.

Justin Hastings, Assistant Professor (404-385-2829) [justin.hastings@inta.gatech.edu] Ph.D., University of California, Berkeley, 2008. Non-state nuclear proliferation; state weakness and proliferation; illicit trafficking; logistics and organizational structures of proliferation networks; application of conventional findings to nuclear issues.

Jarrod Hayes, Assistant Professor (404.894.0289) [jarrod.hayes@gatech.edu]; Ph.D., University of Southern California, 2009, nuclear proliferation; nuclear strategy and arms control; South and East Asia; Europe.

Sheldon M. Jeter, Associate Professor (404-894-3211) [sheldon.jeter@me.gatech.edu] Ph.D., Georgia Institute of Technology, 1979. Heat transfer; thermal hydraulics. Professional Engineer.

Bernd Kahn, Professor Emeritus (404-407-6776) [bernd.kahn@me.gatech.edu] Ph.D., Massachusetts Institute of Technology, 1960. Radiochemistry; radiochemical analysis; radiological monitoring.

Ratib Karam, Professor Emeritus (404-894-3620) [ratib.karam@nnrc.gatech.edu] Ph.D., University of Florida, 1963. Reactor physics; transport theory.

Benjamin Klein, Associate Professor (912-966-7945) [bklein@gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 2000. Reactor physics; transport theory; optical; optoelectronic; and electronic device simulation and design; wide-bandgap semiconductors; nanowire FETs and LEDs; scintillator characterization and design; photonic crystal devices

Margaret E. Kosal, Assistant Professor (404-894-9664) [margaret.kosal@inta.gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 2001. Nuclear, chemical, and biological nonproliferation; counterproliferation; counterterrorism; and consequence management; CBRN defensive countermeasures and policy; deterrence; emerging technologies (nanotechnology, including metamaterials; biotechnology, including synthetic genomics; neuro- and cognitive sciences) and international security.

William D. Kulp, Research Scientist II (404-385-3248) [wdkulp@mailaps.org] Ph.D., Georgia Institute of Technology, 2001. Nuclear structure; gamma-ray spectroscopy; nuclear data evaluation; nuclear materials detection; replacement of radioactive sources; accelerator physics.

David L. McDowell, Carter N. Paden Jr. Distinguished Chair in Metals Processing and Regents' Professor (404-894-5128); [david.mcdowell@me.gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 1983. Effects of radiation on metals. multiscale modeling and materials design

Lawrence P. Rubin, Assistant Professor (404-385-4081) (lawrence.rubin@inta.gatech.edu) Ph.D., University of California, Los Angeles, 2009. Nuclear nonproliferation; terrorism; energy security; and Middle East politics and security.

Dennis Sadowski, Research Engineer II (404-385-1868) [dennis.sadowski@me.gatech.edu]; M.S., University of Illinois at Chicago, 1986. Thermal sciences; design and construction of experimental equipment.

Richard Sanchez, Adjunct Professor; Research Director, CEA Saclay, Professor at INSTN (+33 1 69085404, [richard.sanchez@cea.fr] Ph.D., University of Washington 1981. Ph.D., University of Orsay 1979. Reactor physics; transport theory and numerical methods.

Adam N. Stulberg, Associate Professor and Co-Director of the Center for International Strategy, Technology, and Policy (404-385-0090) [adam.stulberg@inta.gatech.edu]; Ph.D., University of California, Los Angeles, 1996. Nuclear strategy; arms control; and nonproliferation; internationalization of the fuel cycle; illicit nuclear trafficking; nanotechnology and international security.

Christopher J. Summers, Professor (404-385-0697) [chris.summers@mse.gatech.edu] Ph.D., Physics, University of Reading, England, 1966. Phosphors and luminescent materials for displays; solid-state lighting and scintillators; synthesis of nanophosphors and quantum dots; photonic crystals; optical and electrical properties of semiconductors; semiconductor growth; particularly the development of new atomic layer deposition techniques and processes for optimizing photonic crystals and metamaterials.

Tristan Utschig, Assistant Director for the Scholarship and Assessment of Teaching and Learning, Center for the Enhancement of Teaching and Learning (404-385-2949)[tris.utschig@cetl.gatech.edu] Ph.D., University of Wisconsin-Madison, 2000. Faculty development; assessment; scholarship of teaching and learning; thermochemical nuclear safety analysis; hydrodynamics modeling.

Ce Yi, Research Engineer I (404-894-3718) [ce.yi@nre.gatech.edu]; Ph.D., University of Florida, 2007; Radiation transport simulation using deterministic and Monte Carlo methods; deterministic transport algorithms and code development; nuclear multi-group cross section generation; medical imaging simulation; numerical methods and parallel computing.

Nazia Zakir, Radiation Safety Officer, (404-894-3621) [nazia.zakir@ehs.gatech.edu] M.S. Radiological Physics, Rutgers University, 1999. Operational health physics; radiological safety; radiological monitoring.

Dingkang Zhang, Research Engineer II, (404-894-2087) [dingkang.zhang@gatech.edu] Ph.D., Georgia Institute of Technology, 2005. Computational reactor and medical physics; radiation transport theory; hybrid transport methods.

Ting Zhu, Associate Professor (404-894-6597) [ting.zhu@me.gatech.edu] Ph.D., Massachusetts Institute of Technology, 2004. Mechanical behavior of solids and thin films; nanomechanics of defect in crystals; coupled mechano-chemical phenomena; multiscale and nuclear energy related materials modeling.

Nuclear Science and Engineering Research Centers

Fusion Research Center: [www.frc.gatech.edu], Director, Weston Stacey (NRE), [weston.stacey@nre.gatech.edu] (404-894-3714). Plasma edge physics, plasma and neutral particle transport, fusion neutron source applications, next-step tokamak design analysis, transmutation of spent nuclear fuel.

Pioneer Research in Nuclear Detection: [www.prind.gatech.edu], Director, Nolan E. Hertel (NRE), [nolan.hertel@nre.gatech.edu] (404-894-3601). Neutron detection and spectroscopy, radiation dosimetry, transport and detector simulations, multi-scale materials modeling, semi-conductor and phosphor/scintillator materials, large scale optimization

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tokuhira@uidaho.edu

Website: www.uidaho.edu/idahofalls/nuclearengineering.aspx

	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	0	0	0	0
Masters	0	4	5	6
PhD	0	0	1	1

Graduate Student Enrollment: 39 Masters/18 Ph.D.

Nuclear Science and Engineering Faculty

Indrajit Charit, Assistant Professor (208-885-5964) [icharit@uidaho.edu] Ph.D, University of Missouri, 2004. Microstructure-property correlations, nuclear materials, high temperature mechanical behavior of materials (creep, superplasticity, creep-fatigue), nanocrystalline materials, advanced processing techniques (mechanical alloying, friction stir processing), light metals, multi-functional materials.

John Crepeau, Professor (208-885-5228) [crepeau@uidaho.edu] Ph.D., University of Utah, 1991. Transition to turbulence in fluid flow and fluid stability; flow visualization; experimental and theoretical studies of drying and drying processes. Solidification of materials with internal heat generation.

Supathorn Phongikaroon, Assistant Professor (208-533-8123) [supathor@uidaho.edu] Ph.D., University of Maryland. 2001. Pyroprocessing technology--theoretical and experimental studies in electrorefinery, oxide reduction and chemistry, and ion exchange; interfacial phenomena and multiphase flow systems involving in nuclear and chemical engineering applications.

Akira Tokuhira, Professor (208-533-8102) [tokuhira@uidaho.edu] Ph.D., Purdue University, 1991. Thermo-fluid sciences, experiments, nuclear reactor engineering, design and safety, thermohydraulics, convective heat transfer, applied biometrics, energy processes modeling, CFD, applications of silica and polymer gels.

Vivek Utgikar, Associate Professor (208-533-8117) [vutgikar@uidaho.edu] Ph.D., University of Cincinnati, 1993. Development of energy utilization systems - nuclear hydrogen production, utilization and safety; reactor-hydrogen production interface; energy analysis; electrochemical engineering and fuel cells.

Other Faculty

Fred Gunnerson, Emeritus Faculty (208-282-7900) Ph.D., University of New Mexico, 1979. Thermo-fluids, high temperature heat transfer, nuclear science.

Steven Howe, Director (208-526-6103) [steven.howe@inl.gov] Ph.D., Kansas State University, 1980. Nuclear space, space nuclear power, and propulsion. Website: <http://www.csnr.usra.edu/>

Jesse McBurney-Rebol, Instructor (208-533-5769) [jrebol@if.uidaho.edu] M.S., University of Idaho, 2008. Nuclear criticality safety, human factors engineering, spent fuel handling system design, and nuclear engineering management.

Donald McEligot, Distinguished Affiliate Faculty (208-533-8120) [donaldm@uidaho.edu] Ph.D., Stanford University, 1963. Thermal science: convective heat transfer, fluid mechanics, turbulent, laminar and transitional shear flow: experimental, analytical and computational.

Nuclear Science and Engineering Research Centers

Center for Advanced Energy Studies – Website: www.uidaho.edu/idahofalls/caes

IDAHO STATE UNIVERSITY

Nuclear Engineering and Health Physics

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.*	6	3	8	4
Masters*	1	5	2	8
PhD*	0	3	2	1

**Numbers indicate only Nuclear Engineering Degrees*

Graduate Student Enrollment: 25 Masters/5 Ph.D.

ABET Accreditation: B.S. in NE

Nuclear Science and Engineering Faculty

Jay F. Kunze, Chair, Nuclear Engineering Department (208-282-4147) [kunzejay@isu.edu] Ph.D., Carnegie-Mellon, 1959. Reactor engineering, reactor physics, health physics, medical physics. Professional Engineer. Website: www.engr.isu.edu/pages/nuclear-engineering.php

Richard Brey, Assistant Chair and Professor, Radiation Safety Officer. (208-282-2667) [breyrich@isu.edu] PhD, Purdue University. 1994. Health physics, internal dosimetry, radiation instrumentation, environmental radioactivity.

Eric A. Burgett, Assistant Professor (208-282-2220) [burgeric@isu.edu] Ph.D., Georgia Institute of Technology, 2010. Radiation detector development; scintillator detectors; semiconductor detectors; novel detector materials; nanophotonics; homeland security; nuclear nonproliferation; nuclear fuels; nuclear materials; detector calibrations; neutron spectroscopy; health physics.

Mary Lou Dunzik-Gougar, Assistant Professor (208-282-7809) [mldg@isu.edu]; PhD, Pennsylvania State University, 2003. Nuclear fuel cycle; radioactive waste management; waste form development; irradiated nuclear graphite.

Jason T. Harris, Assistant Professor (208-282-3364) [harrjaso@isu.edu]; Ph.D., Purdue University, 2007. Health physics (reactor and environmental); radiation detection and measurement; instrumentation; accelerator applications. Website: http://www.physics.isu.edu/staff/Jason_H.html

Todd C Gansauge, Instructor (208-282-2968) [ganstodd@isu.edu]; Masters of Science Mechanical Engineering, University of Utah, 1990. Reactor physics; radiation detection. Professional Engineer.

George R. Imel, Professor and Dean of College of Science and Engineering (208-705-2344); [gimel@isu.edu]; Ph. D., Pennsylvania State University, 1971. Experimental reactor physics, fast reactor physics.

Michael J. Lineberry, Research Professor and Director of Institute of Nuclear Science and Engineering (208-533-8114) [mjl@isu.edu]; Ph.D., California Institute of Technology, 1972. Fast reactor fuel cycle, safeguards, and reactor physics.

Richard T. Jacobsen, Professor (208-282-4191); [jacorich@isu.edu]; Ph.D. (Engineering Science), Washington State University, 1972. Thermophysical properties of fluids and fluid mixtures; thermophysical properties of hydrogen; thermophysical properties of natural gas mixtures; energy system design and analysis; methods of developing thermophysical property formulations and equations of state for engineering system design and analysis. Professional Engineer.

Brian G. Williams, Associate Professor, Mechanical Engineering (208-282-4129); [willbria@isu.edu]; Ph.D., Mechanical Engineering, Utah State University, 1997. Thermodynamics, heat transfer, fluid flow; thermal-fluid experimentation; applications to energy systems. Professional Engineer.

Other Faculty

Steve Aumeier, Adjunct Faculty (208-522-7479); Ph.D.

Bob Boston, Advanced Test Reactor Team Leader (208-533-4250) [bostonrd@id.doe.gov]; MS

Kermit, Bunde, Criticality Safety SME (208-526-5188) [bundaka@id.doe.gov] MS

J. Stephen Herring, Adjunct Faculty (208-526-9497) Ph.D.

Harold Larson, Adjunct Faculty (208-523-0694) Ph.D. Reactor Kinetics

D. Scott Lucas, Adjunct Faculty (208-526-2366) Ph.D.

Adam Mallicoat, Reactor Supervisor (913-638-6800) [malladam@isu.edu]; BS in Mechanical Engineering, Kansas State University, 2008. MCNP Simulations.

Kathryn A. McCarthy, Adjunct Faculty (208-526-9392) Ph.D.

Abderrafi M Ougouag, Adjunct Professor (208-526-7659) [Abderrafi.Ougouag@inl.gov] Ph.D., University of Illinois, Urbana, 1984. Computational methods development in reactor physics; theoretical and applied neutron physics; high temperature gas-cooled reactor physics.

Richard Schultz, Adjunct Faculty (208-526-9548) PhD.

Nuclear Science and Engineering Research Centers

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Idaho Accelerator Center: Director, Doug Wells, Ph.D. (208-282-5875); Radiation effects, NDT/NDE elemental analysis, imaging, nuclear medicine (such as BNCT), health physics, instrument testing and calibration. FY2005 Research Expenditures: ~\$8 million.

Environmental Assessment and Monitoring Laboratory: Director, Richard Brey, Ph.D. (208-282-2667). Low level radiation monitoring, instrument calibration, trace element analysis. High range dosimetry support for the Idaho Accelerator Center. Annual Research Expenditures: \$500,000.

Environmental Monitoring Laboratory: Director: Tom Gesell, Ph.D. (208-282-3669). Low level radiation monitoring, radioanalytical analysis, instrument calibration, trace element analysis. Research Expenditures: \$300,000.

Skyline Laboratory: Director, Brian Williams, Ph.D. Vertical and horizontal thermal hydraulic test loops, laser isotope enrichment laboratory. Research expenditures ~\$400,000.

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Nuclear, Plasma, and Radiological Engineering

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	17	31	19	12
Masters	11	12	3	8
PhD	8	6	4	10

Graduate Student Enrollment: 13 Masters/52 Ph.D

ABET Accreditation: B.S. (N.E.)

Distance Education Program

Offers Nuclear Engineering Courses Online

Nuclear Science and Engineering Faculty

James F. Stubbins, Department Head and Professor (217-333-6474) [jstubbin@illinois.edu] Ph.D., University of Cincinnati, 1975. Development, analysis and application of materials, primarily for energy-related applications; nuclear systems design and analysis; nuclear materials; irradiation damage and effects, mechanical properties; high temperature corrosion; electron microscopy. Professional Engineer. Website: <http://materials.ne.uiuc.edu>

Roy A. Axford, Professor (217-333-4399) [r-axford@illinois.edu - prefers phone or regular mail] Sc.D., Massachusetts Institute of Technology, 1958. Reactor physics, safety, and risk assessment; radiation hydrodynamics; heat transfer; optimal reactor control; synthesis and nuclear fuel management; hydrodynamic stability; lie groups and systems of nonlinear differential equations; plasma physics; group invariant difference schemes. Website: <http://npre.illinois.edu>

Brent J. Heuser, Associate Professor (217-333-9610) [bheuser@illinois.edu] Ph.D., The University of Michigan, 1990. Hydrogen in metals; hydrogen trapping at defects; metal hydrides; transmission electron microscopy studies of metal defects; neutron scattering; metal thin-film multilayer structures. Website: <http://positron.ne.uiuc.edu>

Barclay G. Jones, Professor (217-333-3535) [bgjones@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1966. Thermal hydraulics/reactor safety; multiphase flow; boiling heat transfer; turbulence measurement and modeling; flow-induced vibrations and hydroacoustics; human-machine interfaces for reactor control and simulation; food irradiation safety. Website: <http://npre.illinois.edu>

Ling-Jian Meng, Assistant Professor (217-333-7710) [ljmeng@illinois.edu] Ph.D., University of Southampton-UK, 2001. High resolution X and gamma ray detectors for radiological imaging applications; ultra-high resolution SPECT system for small animal brain studies; multi-modality imaging systems; nuclear imaging system. Website: <http://radimg.ne.uiuc.edu>

Magdi Ragheb, Associate Professor (217-333-6569) [mragheb@illinois.edu] Ph.D., University of Wisconsin, 1978. Computational methods; radiation protection and shielding; probabilistic risk assessment; applied artificial intelligence; supercomputing. Website: <https://netfiles.uiuc.edu/mragheb/www/>

David N. Ruzic, Professor (217-333-0332) [druzic@illinois.edu] Ph.D., Princeton University, 1984. Experimental fusion research; modeling of edge plasma; atomic properties of potential first-wall materials; plasma-material interaction; plasma processing of semiconductors; extreme ultraviolet (EUV) sources for lithography; physical and chemical vapor deposition. Website: <http://cpmi.ne.uiuc.edu>

Clifford E. Singer, Professor (217-333-1814) [csinger@illinois.edu] Ph.D., University of California, Berkeley, 1971. Advanced spacecraft propulsion systems, spent nuclear fuel management, nuclear proliferation, energy systems analysis, and energy econometrics. Website: <http://npre.illinois.edu>

Rizwan Uddin, Professor (217-244-4944) [rizwan@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1987. Advanced computational methods; theoretical and CFD; radiation transport and reactor physics; reactor engineering; multiphase flow; reliability and risk analysis; virtual reactor simulation. Website: <http://verl.npre.illinois.edu/>

Other Faculty

Michael Aref, Adjunct Assistant Professor (217-333-2295) [maref@illinois.edu] Ph.D. and M.D., University of Illinois at Urbana-Champaign and College of Medicine, 2006. Quantitative biomedical imaging; spectroscopic detection; functional imaging; improved diagnostic tumor physiology parameter estimation.

Thomas J. Dolan, Adjunct Professor (217-333-2295) [dolantj@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1970. Plasma confinement methods and fusion reactor designs; low energy nuclear reactions. Website: <https://wiki.engr.illinois.edu/display/npre421/Professor+Dolan+Homepage>

Masab H. Garada, Adjunct Assistant Professor (217-333-2295) [masab.garada@provena.org] Ph.D., University of Illinois at Urbana-Champaign, 2006. Intensity modulated radiation therapy (IMRT); image guided radiation therapy (IGRT); three-dimensional conformal radiation therapy; linac radiosurgery and stereotactic; low dose-rate brachytherapy: prostate seed implants, medium dose-rate brachytherapy; cervical cesium implants, high dose-rate brachytherapy; iridium lung implants, tumor and normal tissue response and radiobiological models.

Daniel F. Hang, Emeritus Professor (217-333-3348) [d-hang@illinois.edu] M.S., University of Illinois at Urbana-Champaign, 1949. Fuel cycle and economics. Professional Engineer.
Website: <http://npre.illinois.edu>

Brian E. Jurczyk, Adjunct Research Assistant Professor (217-333-2295) [bjurczyk@starfireindustries.com] Ph.D., University of Illinois at Urbana-Champaign, 2003. Advanced plasma debris mitigation; advanced tin and lithium fuels research; optics contamination; erosion and lifetime research; self-healing optics research; halide etching and condensable material removal; fast ion suppression with light gas mixtures. Website: <http://www.starfireindustries.com>

Charles P. Marsh, Adjunct Professor (217-333-2295) [Charles.P.Marsh@usace.army.mil] Ph.D., University of Illinois at Urbana-Champaign, 1989. Ferroelectric crystal degradation and effects on electron emission; bulk metallic glass formation; synthesis and modeling of CNT based structural materials; quantum dot based self-sensing materials; corrosive degradation, assessment and mitigation; conventional and enhanced pumped thermal flow using Microencapsulated Phase Change Materials (MPCM) and nanofluids.

George H. Miley, Emeritus Professor (217-333-3772) [ghmiley@illinois.edu] Ph.D., The University of Michigan, 1959. Fusion systems; plasma engineering; reactor kinetics; high voltage technology; nuclear pumped lasers; direct energy conversion; hydrogen energy production; low-energy nuclear reactions in solids. Professional Engineer. Website: <http://lenr.ne.uiuc.edu/>

David W. Miller, Adjunct Assistant Professor (217-333-1098) [dwmiller2@aep.com] Ph.D., Purdue University, 1976. Occupational dose reduction at nuclear power plants; colloidal source term removal and mitigation studies in primary coolant at light water reactors; tritium recapture modeling at pressurized water reactors; UNSCEAR US effluent databases and analysis; radiological work management research at nuclear power plants; medical shielding validation studies; ACCESS relational database development for dose trend analysis.

Richard F. Nelson, Adjunct Professor (217-351-0846) [rfnelson@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1984. Radiological physicist; radiation oncology-external beam and internal sources; diagnostic radiology; consultant physicist.

Martin J. Neumann, Adjunct Assistant Professor (217-840-5490) [mneumann@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 2007. EUVL related technologies; semiconductor fabrication and processing and plasma-material interactions related to fusion applications.

William R. Roy, Adjunct Professor (217-333-1197) [wroy@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1985. Geochemistry and soil/environmental chemistry; equilibrium distribution and thermodynamics of chemical constituents at solid-liquid interfaces; solid-phase equilibria of natural and anthropogenic materials in aqueous; solution; environmental impacts of coal utilization; chemical fate and transport of contaminants in soil and groundwater; carbon sequestration; radioactive waste management.

Robert A. Stubbers, Adjunct Research Assistant Professor (217-333-2295) [rstubbers@starfireindustries.com] Ph.D., University of Illinois at Urbana-Champaign, 1994. Plasma innovations for aerospace; defense, industrial, instrumentation, medical; semiconductor applications. Website: <http://www.starfireindustries.com>

Nuclear Science and Engineering Research Centers

The **Center for Plasma Material Interactions (CPMI)**, <http://cpmi.illinois.edu>, objective is to study plasma material interactions relevant to fusion, semiconductors, and plasma manufacturing through a combination of computational and experimental means. Projects are supported by both government and commercial partners to further the application and knowledge of plasma physics.

The **North American Technical Center (NATC) for the Information System on Occupational Exposure (ISOE)** is located at the Department of Nuclear, Plasma, and Radiological Engineering. NATC is one of four technical centers for the Organisation for Economic Co-operation and Development (OECD) Nuclear Energy Agency and International Atomic Energy Agency (IAEA) global occupational dose reduction information exchange engineering database. NATC manages the Canadian, Mexican, and US nuclear power plants data analysis. Website at isoe-network.net

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Website: www.mne.ksu.edu

	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	0	0	0	0
Masters	4	1	3	7
PhD	0	0	1	1

Graduate Student Enrollment: 5 Masters/12 Ph.D.

ABET Accreditation: ME

Distance Education Program

Offers Nuclear Engineering Courses Online

www.mne.ksu.edu/big12ne

Nuclear Science and Engineering Faculty

John K. Shultis, Professor and Nuclear Program Director (785-532-5626) [jks@ksu.edu]; Ph.D., University of Michigan, 1969. Radiation transport and shielding; Monte Carlo techniques; radiation detector design; simulations and modeling. Website: www.mne.ksu.edu/~jks

Ali E. Abdou, Assistant Professor (785-532-7182); [aeabdou@ksu.edu]; Ph.D., University of Wisconsin-Madison, 2005. Nuclear fusion; high temperature plasma physics; plasma aided nanofabrication; pulsed power discharges; multi-radiation plasma sources. Website: <http://www.mne.ksu.edu/people/faculty/abdou>

William L. Dunn, Associate Professor (785-532-5628); [dunn@mne.ksu.edu]; Ph.D., North Carolina State University, 1974. Radiation measurement and applications; explosives detection; nondestructive evaluation; quantitative analysis; radiation shielding and dosimetry; Monte Carlo methods and applications; fusion-fission energy systems. Website: www.mne.ksu.edu/people/faculty/dunn

Douglas S McGregor, Professor (785-532-4093) [mcgregor@ksu.edu]; Ph.D., University of Michigan, 1993. Development of room temperature gamma ray spectrometers; semiconductor radiation detectors; solid-state neutron detectors; miniaturized neutron detectors; scintillator crystal growth; compound semiconductor crystal growth; radiation detector arrays.

Website: <http://www.mne.ksu.edu/people/faculty/mcgregor>

Nuclear Science and Engineering Research Centers

SMART Lab: design, fabrication and testing of novel radiation detectors. TRIGA MArk II Reactor Facility: 1.25 MS steady power and pulsing capability.

UNIVERSITY OF MARYLAND

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Website: www.mse.umd.edu

	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	0	0	0	0
Masters	1	0	3	4
PhD	0	0	0	0

Graduate Student Enrollment: 7 Masters/10 Ph.D.
ABET Accreditation: Materials Science and Engineering

Distance Education Program

Offers Nuclear Engineering Courses and Degree Online
<http://www.oaee.umd.edu/>

Nuclear Science and Engineering Research Centers

University of Maryland Radiation Facilities: Laboratory for Radiation and Polymer Science; High-Energy Linear Accelerator (LINAC); The Biophysical and Polymer Radiation Laboratory

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	20	14	15	10
Masters	25	22	24	23
PhD	12	11	15	15

Graduate Student Enrollment: 58 Masters/51 Ph.D.

ABET Accreditation: SB

Nuclear Science and Engineering Faculty

Richard K. Lester, Japan Steel Industry Professor and Head of the Department of Nuclear Science and Engineering and director of Industrial Performance Center (617-253-7704) [rklester@mit.edu] Ph.D., Massachusetts Institute of Technology, 1979. The organization and management of systems of innovation; and the public and private management of energy technologies.

Website: <http://web.mit.edu/nse/lester/index.html>

Ronald G. Ballinger, Professor of Nuclear Science and Engineering and Materials Science and Engineering (617-253-5118) [hvymet@mit.edu] Sc.D., Massachusetts Institute of Technology, 1982. Corrosion and fatigue; fuel behavior modeling, environmental effects on materials performance.

Website: <http://web.mit.edu/nse/people/faculty/ballinger.html>

Jacopo Buongiorno, Associate Professor of Nuclear Science and Engineering and Mechanical Engineering (617-253-7316) [jacopo@mit.edu] Ph.D., Massachusetts Institute of Technology, 2000. Multi-phase flow and heat transfer; advanced reactor design; reactor thermal-hydraulic; nanofluid technology. Website: <http://web.mit.edu/nse/people/faculty/buongiorno.html>

Paola Cappellaro, Assistant Professor (617-253-8137) [pcappell@mit.edu] Ph.D., Massachusetts Institute of Technology. Quantum control; quantum information; precision measurement; nuclear magnetic resonance. Website: <http://web.mit.edu/nse/people/faculty/cappellaro.html>

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for enhanced activity and durability in high temperature electrocatalytic devices for hydrogen, synthetic gas (H₂+CO), and electricity production; engineered micro- and nano-structures in alloys for improved resistance against corrosion and stress corrosion cracking in nuclear and other energy systems subject to harsh environments. Website: <http://web.mit.edu/nse/people/faculty/yildiz.html>

Other Faculty

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Neil E. Todreas, Professor of Nuclear Science and Engineering and Professor of Mechanical Engineering Emeritus (617-253-5296) [todreas@mit.edu] Ph.D. Reactor engineering; reactor thermal analysis; heat transfer and fluid flow.

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Website: <http://web.mit.edu/nse/people/faculty/yip.html>

Nuclear Engineering Research Centers

Plasma Science and Fusion Center [<http://web.psfc.mit.edu/>], Director, Professor Miklos Porkolab (Physics) [porkolab@psfc.mit.edu]. The Plasma Science and Fusion Center carries out a broad range of research in the science of plasmas, plasma based technologies, and fusion science and technology. With a budget of \$32.8-million in FY06, the Center conducts experimental and theoretical research in understanding the physics of plasmas and its applications to magnetic and inertial confinement fusion, the physics of waves and beams, development of state-of-the-art superconducting magnet systems, and development of plasma technologies for environmental monitoring and pollution control and remediation. Foremost among these research activities is the Alcator Project, an experimental tokamak device for magnetic confinement fusion research and a National Facility, which accounts for more than half of the Center's FY06 research budget at \$19.8-million.

Center for Advanced Nuclear Energy Systems [<http://web.mit.edu/canes/>], Director, Professor MujidKazimi (NSE). CANES has four research program areas: Advanced Reactor Systems, Nuclear Fuel Cycles, Enhanced Performance of Nuclear Power Plants, and Nuclear Energy and Sustainability. The Center offers three short summer professional courses: Nuclear Systems Safety, Reactor Technology for Power Plant Executives, and Probabilistic Methods for Nuclear Plant Management. Annual Research Expenditure: \$5,000,000.

Industrial Performance Center (IPC) [<http://web.mit.edu/ipc>], Director, Richard K. Lester (Japan Steel Industry Professor of Nuclear Science and Engineering and Head, Department of Nuclear Science and Engineering). The Industrial Performance Center (IPC) is an MIT-wide research unit, based in the School of Engineering. The Center serves as a focus at MIT for interdisciplinary research on the rapidly changing global economy. Our interdisciplinary teams observe, analyze and report on strategic, technological, and organizational developments in a broad range of industries and examine the implications for society and the global economy. The IPC currently has four main research areas: local innovation systems; globalization and global value chains; energy innovation systems; and energy and industrial development in China.

MIT Research Reactor Director Prof. David E. Moncton [dem@mit.edu] Two medical irradiation facilities for NCT research and clinical trials, the fission converter based epithermal neutron beam has the highest intensity in the world. There are 11 beam port, 4 pneumatic tubes, 4 vertical thimbles in the graphite reflector, a prompt gamma neutron activation analysis facility, a neutron activation analysis lab, a gamma irradiation facility, and unique in-core irradiation loops for water chemistry, materials, and advanced nuclear fuel research.

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http://www.uml.edu/college/arts_sciences/Physics/Radiological_Sciences/default.html

	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	4	5	9	11
Masters	6	6	15	11
PhD	0	2	0	1

Graduate Student Enrollment: 30 Masters/20 Ph.D.

ABET Accreditation: BS Nuclear Engineering Option, BS Health Physics,
MS Health Physics

Distance Education Program

Offers Nuclear Engineering Courses Online

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James R. Sheff, Professor (978-934-3169) [James_Sheff@uml.edu] Ph.D., University of Washington , 1965. Transport phenomena; control systems; separations and laboratory processes.

Mark Tries, Associate Professor (978-934-3353) [Mark_Tries@uml.edu] Ph.D., University of Massachusetts, Lowell, 2000. External dosimetry; shielding; radiochemistry.

John R. White, Professor (978-934-3165) [John_White@uml.edu], Ph.D., University of Tennessee , 1976. Research reactor digital control and data acquisition; computational reactor physics; computer methods; reactor modeling.

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Nuclear Science and Engineering Research Centers

The **UMass Lowell Radiation Laboratory** provides controlled radiation environments and analytical measurement services to government organizations and to industry. The laboratory provides facilities for proton, neutron and gamma environments and has been used for pure and applied nuclear physics research, for simulating radiation conditions of hostile space environments, for non-destructive testing and analysis, for research and development of radiation resistant electronics and materials, and for research and development of radiation induced modifications to materials.

Website: <http://www.uml.edu/centers/RadLab/default.html>

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	10	12	19	25
Masters	2	4	5	10
PhD	0	0	2	3

Graduate Student Enrollment: 22 Masters/15 Ph.D.

Distance Education Program

Offers Nuclear Engineering Courses and Degrees Online
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Nuclear Science and Engineering Research Centers

University Network of Excellence in Nuclear Engineering (UNENE)

Center for Advanced Nuclear System Nuclear Ontario

McMaster Institute for Energy Studies

UNIVERSITY OF MICHIGAN

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	15	30	28	41
Masters	25	15	21	39
PhD	10	10	7	10

Graduate Student Enrollment: 22 Masters/99 Ph.D.
ABET Accreditation: B.S.E. (N.E.R.S)

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Marek Flaska, Assistant Research Scientist (734-764-0150) [mflaska@umich.edu] Ph.D., Technical University (TU) Delft, 2006. Organic and inorganic scintillation detectors; capture-gated detectors; and other detector types for nuclear materials identification for nuclear nonproliferation; nuclear material control and accountability and national security. Website: <http://www.ners.engin.umich.edu>

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Terry Kammash, Stephen S. Attwood Professor of Engineering and Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-764-0205) [tkammash@umich.edu] Ph.D., University of Michigan, 1958. Theoretical and computational investigations of high temperature plasma confinement in magnetic fusion devices, including the study of equilibrium, transport, and stability of plasma in toroidal and open-ended devices; inertial confinement fusion; plasma engineering; power producing fusion reactors; space applications of nuclear energy. Website: <http://www.ners.engin.umich.edu>

Glenn F. Knoll, Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-936-0121) [gknoll@umich.edu] Ph.D., University of Michigan, 1963. Detection and spectroscopy of ionizing radiation; gamma ray imaging for medical and other applications; three dimensional position sensing in gamma ray spectroscopy, neutron detection and imaging. Website: <http://www.ners.engin.umich.edu>

Imre Pázsit, Adjunct Professor (46-31-772-3081) [imre@nephy.chalmers.se] Ph.D., Roland Eotvos University, Budapest, 1975. Theory of neutron fluctuations in multiplying materials with application to nuclear material detection and identification; stochastic theory of neutron slowing down, energy deposition and light generation in detectors; solving inverse problems in material identification; deterministic and stochastic transport of neutrons and charged particles; dynamics and diagnostics of current and future reactor systems. Website: <http://www.ners.engin.umich.edu>

Volkan Seker, Assistant Research Scientist (734-764-7286) [vseker@umich.edu] Ph.D., Purdue University, 2007. High-temperature gas cooled reactor physics and thermo-fluids; computer code development in nuclear reactor analysis; and parallel and high performance computing. Website: <http://www.ners.engin.umich.edu>

Dieter Vincent, Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-936-1592) [dvincent@umich.edu] Ph.D., Universitaet Goettingen, 1956. Radiation effects in materials, hydrogen (and helium) in metals; ion beam analysis; moessbauer spectroscopy; positron lifetime spectroscopy. Website: <http://www.ners.engin.umich.edu>

Ruth Weiner, Adjunct Assistant Professor (505-284-8406) [rfweine@sandia.gov] Ph.D., Johns Hopkins University, 1962. Radiation risk analysis; radioactive waste management., transportation and storage of radioactive materials. Website: <http://www.ners.engin.umich.edu>

Louise Willingale, Assistant Research Scientist (734-763-4980) [wlouise@umich.edu] Ph.D., Imperial College, UK, 2007. Ultrahigh-intensity laser-plasma interactions, laser propagation through underdense and near-critical density plasmas, ion and electron acceleration. Website: <http://www.ners.engin.umich.edu>

Feng Zhang, Assistant Research Scientist (734-615-6890) [zhangf@umich.edu] Ph.D., University of Michigan, 2004. Radiation measurements and applications. Website: <http://www.ners.engin.umich.edu>

Nuclear Science and Engineering Research Centers

MCASL Center: the University of Michigan branch of CASL, the Consortium for Advanced Simulation of Light Water Reactors (LWRs) that is centered at Oak Ridge National Laboratory. CASL was established in 2010 as a ten-institution partnership to create a virtual reactor (VR) for predictive simulation of LWRs. The partnership includes three universities (Michigan, MIT and NC State), four national labs (Oak Ridge, Los Alamos, Sandia, and Idaho), a reactor manufacturer (Westinghouse), a reactor owner/operator (TVA), and the research arm of the nuclear utility industry (Electric Power Research Institute). The MCASL Center includes faculty, PhD students, and postdoctoral fellows from four engineering departments: NERS, Aerospace, Mechanical Engineering, and Materials Science and Engineering. MCASL faculty are involved in development of advanced computational methods for analysis of coupled nuclear reactor phenomena including neutron transport, thermal/hydraulics, materials performance, and validation of these methods against experimental data. A detailed description of CASL is available at <http://www.casl.gov> .

High Temperature Corrosion Laboratory (HTCL) : The High Temperature Corrosion Laboratory (HTCL) provides the capability to conduct corrosion, stress corrosion cracking, and hydrogen embrittlement tests in high temperature aqueous environments and, in particular, simulated light water reactor environments. <http://www-ners.engin.umich.edu/labs/htcl/>

Irradiated Materials Testing Complex (IMTL): The Irradiated Materials Testing Laboratory provides the capability to conduct high temperature corrosion and stress corrosion cracking of neutron irradiated materials and to characterize the fracture surfaces after failure. <http://www-ners.engin.umich.edu/labs/imtl/>

Materials Preparation Laboratory: The Materials Preparation Laboratory provides facilities for the preparation and characterization of materials for materials research studies. The lab houses a grinding and polishing table for metallographic sample preparation, a tube furnace for annealing and heat treating, an electropolishing and etching system, a jet-electropolisher for making TEM disc samples, a slow speed cut-off wheel, a slurry drill, and a microscope and camera for imaging sample surfaces. <http://www.mse.engin.umich.edu/research/facilities/139>

Metastable Materials Laboratory: In the Metastable Materials Laboratory, studies of the kinetics and thermodynamics of nanocrystalline and amorphous materials are conducted. The lab is equipped with facilities for x-ray diffraction, calorimetry, mechanical alloying, and annealing of samples.

Michigan Ion Beam Laboratory (MIBL): The Michigan Ion Beam Laboratory for Surface Modification and Analysis (MIBL) was completed in October of 1986. The laboratory was established for the purpose of advancing our understanding of ion-solid interactions by providing up-to-date equipment with unique and extensive facilities to support research at the cutting edge of science. Researchers from the University of Michigan as well as industry and other universities are encouraged to participate in this effort. <http://www-ners.engin.umich.edu/labs/mibl/>

Neutron Science Laboratory: The Neutron Science Laboratory provides a hands-on neutron measurement experience for students within NERS. The lab is equipped with D-D and a D-T neutron generators with a capability of $\sim 1E06$ and $\sim 1E10$ neutrons/sec, respectively. The neutron generators are also available for researcher in NERS and elsewhere within the University who require a neutron radiation field for the conduct of their research.

Plasma, Pulsed Power and Microwave Lab: The purpose of this lab is to investigate the fundamental physics and technology of interactions between beams of electrons, ions, plasma, microwaves, laser light and radio frequency radiation with plasmas, materials, structures, and biological cells. Numerous state-of-the-art, high-power accelerators, lasers, high power microwave sources, and diagnostic instrumentation are utilized in this research. <http://www-ners.engin.umich.edu/labs/plasma/>

Plasma Science and Technology Laboratory: The Plasma Science and Technology Laboratory's focus is on understanding and applying plasma science to real world problems. The lab has four major thrust areas: plasma space propulsion, plasma processing, environmental mitigation, and energy conversion.

Particular attention is paid to those applications that protect the environment and those that improve the quality of life in underdeveloped countries. <http://www-ners.engin.umich.edu/lab/pstlab/>

Position Sensing Semiconductor Radiation Detector Lab: The Position-Sensing Semiconductor Radiation Detector Laboratory is dedicated to the development of room-temperature semiconductor radiation detectors. The focuses of research include the design of advanced semiconductor-based gamma and neutron spectrometers, ultra- low noise Application Specific Integrated Circuitries (ASICs), real- time gamma-ray imaging reconstruction algorithms, and real-time nuclear isotope detection techniques. These instruments are being developed for applications in nuclear non-proliferation, homeland security, astrophysics, planetary sciences, medical imaging, high- energy physics experiments. <http://czt-lab.engin.umich.edu/>

Radiation Detection Laboratory: The Detection for Nuclear Nonproliferation Lab is used to explore novel techniques for radiation detection and characterization for nuclear nonproliferation and homeland security applications. In addition, we study the detailed response of liquid and plastic scintillation detectors in the presence of neutron and gamma-ray sources. The laboratory is equipped with detection systems, electronics, and fast (GHz) digitizers for pulse acquisition. Pulse analysis is performed on several PC's. <http://www-ners.engin.umich.edu/labs/dnng/>

Radiation Effects and Nanomaterials Lab: The Radiation Effects and Nanomaterials Laboratory is for the preparation and analysis of materials for the study of radiation effects and nanoscience/technology. The laboratory facilities include: a Regarku Miniflex x-ray diffractometer (XRD), a high temperature furnace, a Gatan precision ion polishing (PIPS) workstation, an ultramicrotomy workstation, a carbon coater, and other standard equipment for TEM sample preparation.

Radiation Imaging Laboratory: The Radiation Imaging Laboratory's goal is to develop high- energy gamma ray imaging systems for industrial, space, homeland security, and medical applications. The laboratory explores the fundamental properties of nuclear radiation detectors, develops novel pulse processing electronics, simulates, builds and tests unique radiation measurement systems, and explores new ideas in radiation image formation and reconstruction. <http://www-ners.engin.umich.edu/labs/radmeas/>

Radiological Health Engineering Laboratory: The Radiological Health Engineering (RHE) Laboratory includes equipment and space for the development and testing of new instruments and systems for application to specific radiological health problems. Work is concentrated on practical systems and radiation measurements methods deployable within the immediate future. Work is conducted in novel detector and dosimeter design, as well as improvements in measurement methods for medical, industrial, laboratory and nuclear power radiation safety applications. <http://www-ners.engin.umich.edu/rhelab/>

Center for Ultrafast Optical Science (CUOS): The Center for Ultrafast Optical Science (CUOS) is an interdisciplinary research center in the College of Engineering at the University of Michigan in Ann Arbor. CUOS was sponsored as a Science and Technology Center by the National Science Foundation

during 1990-2001, and as a College of Engineering Center continues its research in ultrafast optics with funding from a variety of government agencies and industry. Its mission is to perform multidisciplinary research in the basic science and technological applications of ultrashort laser pulses, to educate students from a wide variety of backgrounds in the field, and to spur the development of new technologies. <http://www.eecs.umich.edu/CUOS/>

Electron Microbeam Analysis Laboratory (EMAL): The University of Michigan Electron Microbeam Analysis Laboratory (EMAL) is a university-wide user facility for the microstructural and microchemical characterization of materials. Being a user facility, EMAL is open to anyone in the University research community. The laboratory is also open to users from other universities and to users from local industry. <http://www.emal.engin.umich.edu/>

UNIVERSITY OF MISSOURI, COLUMBIA

Nuclear Science and Engineering Institute

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	n/a	n/a	n/a	n/a
Masters	3	19	10	11
PhD	5	6	2	5

Graduate Student Enrollment: 23 Masters/36 Ph.D.

Distance Education Program

Offers Nuclear Engineering Courses Online

http://mudirect.missouri.edu/degprog/specialized/_homeland.shtm

Nuclear Science and Engineering Faculty

Mark A. Prelas, Professor & Director of Research (573-882-9691) [prelasm@missouri.edu] Ph.D. University of Illinois Urbana Champaign, 1979. Radiation damage; diamond and related materials; direct energy conversion; radiation detection; molecular sensors; directed energy; non proliferation; risk management. Professional Engineer. Website: <http://prelas.nuclear.missouri.edu/>

Tushar Ghosh, Director of Graduate Studies and Professor (573-882-9736); [GhoshT@missouri.edu]; Ph.D. Oklahoma State University 1989; High temperature adsorption of fission products, Diffusion of fission products in graphite—experimental and theoretical investigation, adsorption phenomena in biochemical systems, kinetics and reaction mechanisms of catalytic reactions, nuclear waste treatment.

Sudarshan K. Loyalka, Curators' Professor, Professor, and Director of Particulate Systems Research Center (573-882-8201); [LoyalkaS@missouri.edu] Ph.D., Stanford University, 1967; Kinetic theory of gases, Diffusion of fission products in graphite, neutron transport, mechanics of aerosols, physics and thermal hydraulics of nuclear reactors, reactor safety analysis.

William H. Miller, Professor and Director of Energy Systems and Resources Program (573-882-9692); [MillerW@missouri.edu]; Ph.D. University of Missouri 1976; Detectors and digital instrumentation, radiation-based analytical techniques, proton recoil neutron spectrometers, energy systems, public information.

Robert V. Tompson, Associate Professor (573-882-2881); [TompsonR@missouri.edu]; Ph.D. University of Missouri 1988; Kinetic theory of gases, experimental and theoretical aerosol mechanics, neutron transport theory, nuclear reactor physics and safety, lasers and laser applications, materials.

Nuclear Engineering Research Centers

Particulate Systems Research Center: Aerosol mechanics, dynamics, interactions; Particulate production; nuclear safety, very high temperature reactor fuels.

MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

(Formerly UNIVERSITY OF MISSOURI- ROLLA)

Nuclear Engineering

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FAX: 573-341-6309

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573-341-4720

sheiladj@mst.edu

Website: <http://nuclear.mst.edu>

	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	23	29	25	20
Masters	2	2	7	3
PhD	0	0	0	1

Graduate Student Enrollment: 20 Masters/7 Ph.D.

ABET Accreditation: BS Nuclear Engineering

Nuclear Science and Engineering Faculty

Arvind S. Kumar, Professor & Program Chair (573-341-4747) [kumar@mst.edu]

Ph.D., University of California-Berkeley, 1977. Nuclear materials, radiation effects, mechanical properties, nuclear plant life extension. Website:

<http://nuclear.mst.edu/faculty/staffandfacilities/usman.html>

Muthanna H. Al-Dahhan, Professor (573-341-7518) [aldahhanm@mst.edu]

Doctoral degree, Washington University in St. Louis, 1993. Advanced process measurement and monitoring techniques; Radiometric techniques and applications of radioisotopes and nuclear technology in industrial process imaging and visualization; 4th generation nuclear energy and related topics; Multiphase reaction engineering, reactors and processes via advanced measurement, modeling and computational techniques; modeling of transport (momentum, mass, heat) – kinetic interactions; energy efficient and environmentally responsible design, scale-up and performance of multiphase reactors and flow systems; sustainable development via advancing the knowledge and investigating various multiphase processes related to sustainable energy and environment, production of clean energy, bio-energy, fuels, chemicals, and petrochemicals, petroleum processes, biomass and coal conversion and their clean utilization, wastes treatment, animal and farm wastes treatment via anaerobic digestion, environmentally responsible and risk free proliferation nuclear energy, etc. Website: www.mst.edu

Carlos H. Castano, Assistant Professor (573-341-6766) [castanoc@mst.edu] Ph.D., Nuclear Engineering, University of Illinois at Urbana Champaign, 2007. Hydrogen in materials; materials for nuclear engineering; plasma material interactions.

Website: <http://nuclear.mst.edu/facultystaffandfacilities/castano.html>

Hyoung Koo Lee, Assistant Professor (573-341-4585) [leehk@mst.edu] Ph.D., University of California-Berkeley, 1995. Radiation imaging; neutron radiography; neutron CT; X-ray CT; Non-Destructive Evaluation (NDE) of TRISO fuel; NDE of graphite block; medical imaging; digital radiography; digital mammography; digital fluoroscopy; Cone-Beam CT; new X-ray source; digital image processing

Website: <http://nuclear.mst.edu/facultystaffandfacilities/lee.html>

Gary E. Mueller, Associate Professor (573-341-4348) [gmueller@mst.edu] Ph.D., University of Missouri, Rolla, 1980. Particle bed characterization; radio-turbulence; nuclear power safety. Professional Engineer. Website: <http://nuclear.mst.edu/faculty/staffandfacilities/mueller.html>

Shoib Usman, Associate Professor (573-341-745) [usmans@mst.edu] Ph.D., University of Cincinnati, 1997. Radiation measurement and effects on materials, detector characterization, spent fuel interrogation and safeguards, natural convection, turbulence and dispersion, micro convection and radiation effects on fluids. Website: <http://nuclear.mst.edu/facultystaffandfacilities/usman.html>

Other Faculty

Mohammed S. Aljohani, Adjunct Professor (9.66569E+11) [mjohani@kau.edu.sa] Ph.D., Georgia Tech, 1996. Nuclear desalination; thermal and membrane desalination; renewable energy; nuclear and non-nuclear tomography techniques; radiation detection and measurement.

Mariesa Crow, F. Finley Distinguished Professor (573-341-6305) [crow@mst.edu] Ph.D., U. Illinois, 1989. Electric power engineering; microgrids. Professional Engineer.

Delbert E. Day, Curators Professor Emeritus (573-341-4354) [day@mst.edu] Ph.D., Pennsylvania State University, 1961. Vitrification of nuclear waste; microspheres for radioembolization of tumors; radiotherapy; glasses for brachytherapy. Professional Engineer.

Tod Moser, Adjunct Professor (573-823-9253) [tmoser@ameren.com] MSNE, University of Missouri – Columbia, 1992. Professional Engineer.

Nuclear Science and Engineering Research Centers

The Nuclear Reactor: A 200 kW pool-type reactor which has been operating since 1961. It has a beam port, a thermal column and pneumatic transfer tubes. The reactor was refueled with low enriched uranium in the summer of 1992. The reactor is used for reactivity experiments, neutron activation analysis, radiation damage studies, neutron radiography, signal analysis, and materials processing. The reactor facility is equipped with state of the art detection instruments and associated electronics for

neutron activation analysis. Recently acquired console equipment has been interfaced with computer data acquisition systems to extend research into artificial intelligence, neural networking, and noise analysis.

The Radiation Measurements Lab: Equipped with modern radiation detection and analysis equipment. The students learn to measure and analyze various forms of radiation sources.

Graduate Center for Materials Research: The facilities of the Graduate Center for Materials Research, and metallurgical engineering and nuclear engineering departments are available for nuclear materials-related research. The Nuclear Materials Lab allows for use of instruments such as a scanning electron microscope, a 300 keV EM-430 Phillips transmission electron microscope, an atomic absorption spectrometer, and a quadrupole mass spectrometer.

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ABET Accreditation: Mechanical Engineering, Naval Architecture, Ocean Engineering, Aerospace Engineering, Systems Engineering, Ocean Engineering

Nuclear Science and Engineering Faculty

Martin E. Nelson, Professor (410 293-6427) [nelson@usna.edu] Ph.D., University of Virginia, 1972. Dosimetry, radiation detection and measurement, radiation effects on microelectronics, radiation transport. Professional Engineer.

Nuclear Science and Engineering Research Centers

Rickover Hall Nuclear Laboratory-subcritical reactor

D-T and D-D MeV neutron generators

Nuclear Workstations

UNIVERSITY OF NEW BRUNSWICK

Mechanical Engineering
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506-447-3105

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	4	3	3	4
Masters	2	2	2	2
PhD	0	0	0	0

Graduate Student Enrollment: 2 Masters/1 Ph.D.

ABET Accreditation BScE

Nuclear Science and Engineering Faculty

Esam MA Hussein, Professor & Associate Dean (506-447-3105) [hussein@unb.ca]

PhD, McMaster University, 1983. Nuclear methods for nondestructive testing & imaging; inverse problems and Monte Carlo methods. Professional Engineer

Website: <http://www.unb.ca/fredericton/engineering/depts/mechanical/people/hussein.html/>

Nuclear Science and Engineering Research Centers

Laboratory for Threat Material Detection

UNIVERSITY OF NEW MEXICO

Chemical & Nuclear Engineering
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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	7	12	7	10
Masters	1	7	8	9
PhD	0	3	5	0

Graduate Student Enrollment: 19 Masters/21 Ph.D.

ABET Accreditation: BS in ChE and BS in NE

Distance Education Program

Offers Nuclear Engineering Courses Online

www-chne.unm.edu

Nuclear Science and Engineering Faculty

Anil K. Prinja, Professor and Associate Chair (505-277-4600) [prinja@unm.edu] Ph.D., Queen Mary College, University of London, U.K., 1980. Stochastic theory of neutron populations; theory and modeling of high-energy charged particle transport; stochastic uncertainty quantification techniques for radiation transport. Website: www.chne.unm.edu

Gary W. Cooper, Associate Professor (505-277-2557) [garywc@unm.edu] Ph.D., University of Illinois, 1976. Neutron diagnostics of fusion plasmas. Website: www-chne.unm.edu

Cassiano R. E. de Oliveira, Professor (505-277-5661) [cassiano@unm.edu] Ph.D., University of London, 1987. Computational nuclear science; deterministic and stochastic radiation transport; reactor physics methods; nuclear criticality safety; radiation shielding and dosimetry; high performance computing; advanced numerical discretization methods; data assimilation and optimization methods. Website: <http://www-chne.unm.edu/faculty/oliveira/oliveira.htm>

Mohamed S. El-Genk Regents' Professor, Chemical, Nuclear and Mechanical Engineering (505-277-5442) [mgenk@unm.edu] Ph.D. Nuclear reactors neutronics analysis, design, thermal-hydraulics and safety; nuclear fuel and fuel cycle; energy conversion; space nuclear power and propulsion; radiation shielding of space energetic particles; thermal management and energy storage; heat pipes; CFD

analysis of advanced reactors and complex systems; boiling heat transfer and two-phase flow; advanced cooling of electronics; and fluid flow and heat transfer in micro-systems.

Adam A. Hecht, Assistant Professor (505-277-1654) [hecht@unm.edu] Ph.D., Yale University, 2004. Radiation detection and measurement with work in nuclear nonproliferation; experimental work in array detection techniques to extract further radioactive source information; calculational work expanding Monte Carlo simulations to fission for use in active interrogation radiation detection; measurement work on fission output for a range of interrogation beams; investigating properties of novel materials for radiation detection and spectroscopy. Website: www.unm.edu/~hecht

Other Faculty

Robert D Busch, Lecturer III (505-277-8027) [busch@unm.edu] Ph.D., University of New Mexico, 1976. Nuclear criticality safety; reactor physics measurements; laboratory educational techniques. Professional Engineer.

Norman F. Roderick, Professor Emeritus (505-277-2209) [roderick@unm.edu] Ph.D. The University of Michigan, 1971. High energy density physics; fusion; plasma physics.

Nuclear Science and Engineering Research Centers

AGN Reactor, Small sample reactivity measurements and rossi-alpha measurements.

Center for Nuclear Nonproliferation Science and Technology: Interdisciplinary center promoting class and lab coursework and laboratory research.

Nuclear nonproliferation research laboratory: For work on radiation detection materials and techniques, with capabilities in multichannel digital data acquisition, high vacuum and controlled gas environments.

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	21	19	20	19
Masters	9	16	10	4
PhD	5	5	1	1

Graduate Student Enrollment: 56 Masters/46 Ph.D.

ABET Accreditation: BS

Distance Education Program

Offers Nuclear Engineering Courses and Degrees Online

http://engineeringonline.ncsu.edu/EOL_DEGREES/MSNE.pdf

Nuclear Science and Engineering Faculty

Yousry Y. Azmy, Professor & Head (919-515-3385) [yyazmy@ncsu.edu] Ph.D., University of Illinois, Urbana-Champaign, 1985. Nuclear computational Science; computational transport theory; multiprocessing. Website: <http://www.ne.ncsu.edu/faculty/azmy.html>

Hany S. Abdel-Khalik, Assistant Professor (919-515-4600) [abdelkhalik@ncsu.edu] Ph.D., North Carolina State University, 2004. Verification and validation of complex models; multi-scale multi-physics modeling; sensitivity analysis; uncertainty quantification; data assimilation. Website: <http://www.ne.ncsu.edu/faculty/abdelkhalik/abdelkhalik.html>

Dmitriy Y. Anistratov, Associate Professor (919-513-4353) [anistratov@ncsu.edu] Ph.D., Mathematical and Physical Sciences Institute for Mathematical Modeling, Russian Academy of Sciences, 1993. Computational physics; transport theory; numerical analysis. Website: <http://www.ne.ncsu.edu/faculty/anistratov.html>

Igor A. Bolotnov, Assistant Professor (518-542-8939) [igor_bolotnov@ncsu.edu] Ph.D., Rensselaer Polytechnic Institute, 2008. Turbulence modeling of multiphase flows; direct numerical simulation of bubbly flows; development of closure laws for multiphase CFD codes.

Mohamed A. Bourham, Professor (919-515-7662) [bourham@ncsu.edu] Ph.D., Ain Shams University, Cairo, Egypt, 1976. Plasma-matter interaction, plasma diagnostics, plasma-driven launch technology, fusion engineering and technology, plasma dynamics, plasma propulsion and space thrusters, industrial and atmospheric plasmas, physics of low temperature and non-ideal plasmas, physics of beams, particle accelerators and electron beam irradiation systems, atmospheric and industrial plasmas, x-ray sources for medical and screening imaging. Website: <http://www.ne.ncsu.edu/faculty/bourham.html>

D. G. Cacuci, Professor (919-515-3929) [dgcacuci@ncsu.edu] Ph.D., Columbia University, 1978. Predictive best-estimate analysis of large-scale physical and engineering systems, large scale scientific computations and nuclear engineering (reactor multi-physics, dynamics, and safety). Editor, *Nuclear Science & Engineering*. Website: <http://www.ne.ncsu.edu/faculty/cacuci.html>

Joseph M. Doster, Professor (919-515-3658) [doster@ncsu.edu] Ph.D., North Carolina State University, 1982. Systems dynamics, systems simulation, computational methods in two-phase flow, systems simulation in support of advanced control and diagnostic systems, design and optimization of advanced targetry for the cyclotron production of radiopharmaceuticals. Website: <http://www.ne.ncsu.edu/faculty/doster.html>

Jacob Eapen, Assistant Professor (919-515 5952) [jacob.eapen@ncsu.edu] Sc.D., MIT, 2006. Molecular and multiscale simulations, nuclear materials, radiation interactions with materials, computational material science, thermal and fluid transport. Website: <http://www.ne.ncsu.edu/faculty/eapen.html>

Robin P. Gardner, Professor of Nuclear & Chemical Engineering and Director of Center for Engineering Applications of Radioisotopes (919-515-3378) [gardner@ncsu.edu] Ph.D., The Pennsylvania State University, 1961. Industrial radiation and radioisotope measurement applications including: radioisotope tracers; radiation gauges; radiation analyzers; Monte Carlo simulation of previous three; and radiation detection. Professional Engineer. Website: <http://www.ne.ncsu.edu/faculty/gardner.html>

John G. Gilligan, Professor and Director of the Nuclear Energy University Programs Integration Office for the US DOE (919-513-7144) [john_gilligan@ncsu.edu] Ph.D., University of Michigan, 1977. High power density plasma modeling and applications; fission and fusion energy systems; engineering education programs and methods. Website: <http://www.ne.ncsu.edu/faculty/gilligan.html>

Ayman I. Hawari, Professor and Director of Nuclear Reactor Program (919-515-4598) [ayman.hawari@ncsu.edu] Ph.D., University of Michigan, 1995. Neutron thermalization; slow neutron scattering models and atomistic simulations; nondestructive examination with slow neutron and positron beams; neutron imaging; radiation measurements; nuclear materials assay; research reactors and accelerator-based neutron sources. Website: <http://www.ne.ncsu.edu/faculty/hawari.html>

Korukonda L. Murty, Professor and Director of Graduate Programs (919-515-3657) [murty@ncsu.edu] Ph.D., Cornell University 1970. Nuclear materials, radiation effects, mechanical properties, creep,

fatigue and fracture mechanics, processing and characterization of nanograin structured metals, NDE, NMR. Website: <http://www4.ncsu.edu/~murty>

Steven C. Shannon, Associate Professor (919-515-3292) [scshannon@ncsu.edu] Ph.D., University of Michigan, 1999. Industrial plasma applications; plasma diagnostics; radiation/material interaction; nanofabrication; compact neutron generators for low fluence applications. Website: www4.ncsu.edu/~scshanno

Paul J. Turinsky, Professor (919-515-5098) [turinsky@ncsu.edu] Ph.D., University of Michigan, 1970. Computational reactor physics; nuclear fuel management and mathematical optimization; validation and verification of software; uncertainty quantification; data assimilation and optimum experimental design; adaptive model refinement; multiphysics simulation. Website: <http://www.ne.ncsu.edu/faculty/turinsky.html>

Man-Sung Yim, Associate Professor (919-515-1466) [yim@ncsu.edu] Sc.D., Harvard University, 1994. Nuclear waste management; nuclear fuel cycle studies; nuclear nonproliferation; radiological assessment. Professional Engineer. Website: <http://www.ne.ncsu.edu/faculty/yim.html>

Other Faculty

Donald J. Dudziak, Professor Emeritus (505-667-7983) (505-661-3832) [dudziak@ncsu.edu, dudziak@lanl.gov] Ph.D., Univ. of Pittsburgh, 1963. Photon transport in media, nuclear facility shielding, dose assessment and cost/benefit analysis, radiation dose regulation policy. Professional Engineer.

David N. McNelis, Adjunct Professor (919-966-9923) [mcnelis@unc.edu] Ph.D., UNC at Chapel Hill, 1974. Nuclear Fuel Cycle (transmutation; separation; aqueous and pyroprocessing; non proliferation; integrated waste management; thermal loading of repository)

Raymond L. Murray, Professor Emeritus (919-280-6821) [murray@eos.ncsu.edu] Ph.D., University of Tennessee 1950. Reactor analysis.

Avneet Sood, Adjunct Assistant Professor (505-667-2119) [sooda@lanl.gov] Ph.D., North Carolina State University, 2000. Monte Carlo methods and code development for radiation transport; application of radiation transport codes to radiation detection problems.

Bernard W. Wehring, Research Professor (retired, University of Texas at Austin) (919 515-4599) [bwehrin@ncsu.edu] Ph.D., Nuclear Engineering, University of Illinois at Urbana Champaign, 1966. Radiation science; neutron and fission physics.

Gerald Wicks, Reactor Health Physicist and Lecturer (919-515-4601) [wicks@ncsu.edu] M.S., University of Lowell, 1983.

Nuclear Science and Engineering Research Centers

Nuclear Reactor Program operates the 1MW PULSTAR with the following major experimental facilities: Positron Annihilation Spectroscopy, Ultracold neutron source, neutron diffractometer, neutron imaging

Center for Engineering Applications of Radioisotopes (CEAR)

CASL Modeling & Simulation Hub

Chief Scientist: Paul J. Turinsky

Website: www.casl.gov

OHIO STATE UNIVERSITY

Nuclear Engineering Graduate Program
201 West 19th Avenue
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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	n/a	n/a	n/a	n/a
Masters	8	14	8	4
PhD	3	0	0	4

Graduate Student Enrollment: 7 Masters/21 Ph.D.
ABET Accreditation: B.Sc. in Engineering with Nuclear Minor

Nuclear Science and Engineering Faculty

Tunc Aldemir, Professor (614-292-4627) [aldemir.1@osu.edu] Ph.D., University of Illinois, 1978. Nuclear reactor safety; probabilistic risk assessment; smart sensors, plant aging, maintenance and on-line monitoring; digital instrumentation and control systems. Website: <http://www.mecheng.osu.edu/people/tunc-aldemir>

Thomas E. Blue, Professor (614-292-0629) [blue.1@osu.edu] Ph.D., University of Michigan, 1978. Space nuclear systems; advanced nuclear reactor instrumentation, including semiconductor sensors, static and dynamic characterization of radiation-induced degradation of semiconductor power devices; radiation hardness testing; fiber-optics; workforce challenges/education for the nuclear industry. Website: <http://www.mecheng.osu.edu/people/thomas-blue>

Lei (Raymond) Cao, Assistant Professor (614-247-8701) [cao.152@osu.edu] Ph.D., The University of Texas at Austin, 2007. Nuclear instrumentation; development of semiconductor neutron sensors; radiation detection; nuclear analytical technologies (PGAA, NDP and neutron radiography); reactor design. Website: <https://www.mecheng.osu.edu/people/raymond-cao>

Carol S. Smidts, Professor (614-292-6727) [smidts.1@osu.edu] Ph.D., Universite Libre de Bruxelles, Belgium, 1991. Reliability engineering; probabilistic risk assessment; software reliability; software safety; dynamic risk assessment; human reliability; digital systems risk and reliability. Website: <http://www.mecheng.osu.edu/people/carol-smidts>

Xiaodong Sun, Assistant Professor (614-247-7646) [sun.200@osu.edu] Ph.D., Purdue University, 2001. Thermal hydraulics and reactor safety; two-phase flow experimentation, modeling, and numerical simulation; boiling and condensation; interfacial area transport and bubble dynamics; thermal hydraulics in high-temperature reactors.
Website: <https://www.mecheng.osu.edu/people/xiaodong-sun>

Other Faculty

Richard N. Christensen, Professor Emeritus (614-292-0445); [christensen.3@osu.edu]; Heat transfer, boiling and condensation, nuclear energy, inherently safe reactors and passive safety systems.
Website: www.nuclear.osu.edu

Richard S. Denning, Visiting Professor (614-292-2544) [denning.8@osu.edu] Ph.D., University of Florida, 1967. Dynamic PRA; severe accident behavior (LWR and SFR); Fire PRA.
Website: www.nuclear.osu.edu

Brian K. Hajek, Instructor and Associate Chair (614-292-5405) [hajek.1@osu.edu] M.Sc., The Ohio State University, 1972. Reactor operations and regulation, licensing and safety; personnel training/workforce development; computerized procedure development and implementation; simulator modeling including Human-Machine Interface (HMI); nuclear fuel cycle. Website: nuclear.osu.edu

Steven J. Maheras, Lecturer (614-486-5350) [Maheras.1@osu.edu] Ph.D., Colorado State University, 1988. Health physics; radioactive waste management; decontamination and decommissioning; transportation risk assessment; radiological and nuclear terrorism; and radiation dose reconstruction.

Don W. Miller, Professor Emeritus (614-292-7979) [miller.68@osu.edu] Ph.D., The Ohio State University, 1971. Reactor instrumentation, reactor dynamics and control; nuclear medical instrumentation; dynamic safety systems; safety critical software; digital x-ray radiography.
Website: nuclear.osu.edu

Nuclear Science and Engineering Research Centers

The Ohio State University Nuclear Reactor Laboratory (OSUNRL)

The OSUNRL is a major asset of the OSU NE Program. The OSUNRL houses the OSURR a 500-kW pool type reactor, a Co-60 high-dose rate irradiation facility, and a sub-critical assembly. Director: Dr. Thomas E. Blue; Associate Director: Andrew Kauffman
Website: <http://reactor.osu.edu/>

The Ohio State University Research Reactor: The Ohio State University Research Reactor (OSURR) is a general-purpose research and testing reactor based on the Materials Testing Reactor (MTR) design.
Website: <http://reactor.osu.edu/>

Laboratories:

Ohio State's Academic Center of Excellence (ACE) in Instrumentation, Control and Safety
Structure: The Center is jointly operated by Ohio State University (OSU) and Idaho National
Laboratories (INL). Its management structure is as follows:

OSU Director: C. Smidts

OSU Co-Director: T. Aldemir

Website: <http://www.nuclear.osu.edu/ace>

OREGON STATE UNIVERSITY

Department of Nuclear Engineering and Radiation Health Physics

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	19	13	6	20
Masters	2	5	7	4
PhD	1	2	1	1

Graduate Student Enrollment: 25 Masters/11 Ph.D.

ABET Accreditation: BS Nuclear Engineering; BS Radiation Health Physics

Nuclear Science and Engineering Faculty

Kathryn A. Higley, Department Head and Professor (541-737-0675) [kathryn.higley@oregonstate.edu] Ph.D., Colorado State University, 1994. Health physics; human and ecological risk assessment; environmental pathway analysis; environmental radiation monitoring; radionuclide and hazardous chemical transport; radiochemistry; neutron activation analysis; nuclear emergency response planning; environmental regulations. Website: ne.oregonstate.edu

Abdollah T. Farsoni, Assistant Professor (541-737-9645) [abi.farsoni@oregonstate.edu] Ph.D., Oregon State University, 2006. Application of nuclear techniques in homeland security, development of new radiation detectors, designing advanced digital pulse processors for radiation detection and spectroscopy.

David M. Hamby, Professor, Graduate Program Chair (541-737-8682) [david.hamby@oregonstate.edu] Ph.D., University of North Carolina, 1989. Health physics; beta dosimetry; beta spectroscopy; radiation instrumentation; environmental health physics; environmental transport; fate and transport model analysis; radiation risk; uncertainty analysis. Website: ne.oregonstate.edu

Jack F. Higginbotham, Professor (541-737-9949) [jack.higginbotham@oregonstate.edu] Ph.D., Kansas State University, 1987. Space reactor development; nuclear spectroscopy; radiation dosimetry; radiation shielding.

Andrew C. Klein, Professor (541-737-7061) [andrew.klein@oregonstate.edu] Ph.D., University of Wisconsin, Madison, 1983. Nuclear energy policy; space nuclear systems design; transient analysis of

nuclear power systems; radiation shielding; nuclear nonproliferation; safeguards and security; and fusion energy systems design. Professional Engineer. Website: ne.oregonstate.edu

Todd S. Palmer, Professor (541-737-7064) [palmerts@ne.orst.edu] Ph.D., Nuclear Engineering and Scientific Computing, University of Michigan, 1993. Numerical techniques for particle transport and diffusion; computational fluid dynamics; reactor physics; general numerical methods; nuclear criticality safety; Monte Carlo methods; transport in stochastic mixtures. Website: <http://ne.oregonstate.edu/contact/index.html>

Alena Paulenova, Assistant Professor (541-737-7070) [alena.paulenova@oregonstate.edu] Ph.D. Radiochemistry; chemistry of fuel cycle; advanced separations methods for the used fuel reprocessing and fuel waste forms; behavior of actinides and fission products; environmental and biomedical applications. Website: <http://ne.oregonstate.edu/contact/index.html>

Brian G. Woods, Associate Professor (541-737-6335) [brian.woods@oregonstate.edu] Ph.D., University of Maryland, 2001. Experimental and computational fluid dynamics and heat transfer; nuclear reactor thermal-hydraulics; nuclear reactor safety.

Qiao Wu, Professor (541-737-7066) [qiao.wu@oregonstate.edu] Ph.D., Purdue University, 1995. Nuclear reactor thermal-hydraulics, two-phase flow theory and experiments, multiphase flow instrumentation, nuclear reactor safety, scaling analysis of complex systems, neutron radiography for two-phase flow visualization, nuclear system system design, fuel enrichment, system safety analysis code validation. Website: <http://ne.oregonstate.edu>

Other Faculty

Steven R. Reese, Radiation Center Director (541-737-2341) [steve.reese@oregonstate.edu] Ph.D., Colorado State University, 1997. Regulatory compliance; reactor dosimetry; neutron radiography; neutron depth profiling; prompt gamma neutron activation analysis. Website: <http://radiationcenter.oregonstate.edu/People/Reese.html>

Jose N. Reyes, Jr. Professor-currently on leave (541-737-2343) [jose.reyes@oregonstate.edu] Ph.D., University of Maryland, 1986. Thermal hydraulics; multi-phase fluid flow; scaling analyses; reactor safety; reactor system design. Professional Engineer.

Nuclear Science and Engineering Research Center

OSU Radiation Center: The department is housed in the **OSU Radiation Center**. Research facilities include a 1.1 MW TRIGA Mark II nuclear reactor; Advanced Thermal-Hydraulic Research Laboratory (ATHRL) which includes Advanced Plant Experiment (APEX) facility and the Multi-Application Light Water Reactor (MASLWR) facility; the Advanced Nuclear Systems Engineering Laboratory (ANSEL) which includes a High Temperature Test Facility (HTTF), a 1/4-scale test model of a modular High Temperature Gas-Cooled Reactor (HTGR), and a Fuel Development Hydro-Mechanical test loop; the Advanced Nuclear Instrumentation Development Laboratory; Radiochemical Analytical Laboratory with

radio-HPLC- and radio-LC-IS-MS/MS systems; Cobalt-60 Gamma Irradiator; Neutron Radiography facilities; Gamma and Alpha Spectrometry facilities; Radiological Instrument Calibration facilities; Liquid Scintillation Counting Systems; Thermoluminescent Dosimetry Systems..

PENNSYLVANIA STATE UNIVERSITY

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	36	45	35	50
Masters	11 MS & 3 MEng	10 MS & 6 MEng	11 MS & 18 MEng	8 MS & 12 MEng
PhD	2	12	4	7

Graduate Student Enrollment: 15 MS & 88 MEng Masters/35 Ph.D.
ABET Accreditation: BS

Distance Education Program

Offers Nuclear Engineering Courses and Degree Online
<http://www.engr.psu.edu/cde/nuce/index.html>

Nuclear Science and Engineering Faculty

Arthur T. Motta, Chair and Professor (814-865-0036) [atm2@psu.edu] Ph.D., University of California-Berkeley, 1988. Irradiation effects in metals and microstructural evolution under irradiation both from an experimental and a theoretical point of view; behavior of materials, especially nuclear fuel cladding, in the nuclear reactor environment including corrosion, hydriding and irradiation effects.

Maria Avramova, Assistant Professor (814-865-0043) [mna109@psu.edu] Ph.D., Pennsylvania State University, 2007. Reactor thermal-hydraulics; core design; transient and safety analysis; multi-physics multi-scale simulations and uncertainty and sensitivity analysis.

Jack S. Brenizer, Jr., J. "Lee" Everett Professor of Mechanical and Nuclear Engineering (814-863-6384) [brenizer@engr.psu.edu] Ph.D., Pennsylvania State University, 1981. Radiation detection, neutron radiography, neutron activation analysis, nuclear materials monitoring devices.

Gary L. Catchen, Professor (814-865-2011) [g9c@psu.edu] Ph.D. Columbia University, 1979. Hyperfine interactions; radiation detection and measurement; radiation dosimetry; developing teaching techniques for nuclear science.

Fan-Bill Cheung, Professor of Mechanical and Nuclear Engineering (814-863-4261) [fxc4@psu.edu] Ph.D., University of Notre Dame, 1974. Solidification and melting; turbulent natural convection; two-phase flow and heat transfer; nuclear reactor thermal hydraulics and safety; thermal processing of materials; thermal behavior of high-temperature ablatives; dense spray and atomization.

Robert M. Edwards, Professor (814-865-0037) [rmenuc@enr.psu.edu] Ph.D., Pennsylvania State University, 1991. Power Plant simulation and control; applications of artificial intelligence and expert systems to power plant operation. Professional Engineer.

Kostadin Ivanov, Distinguished Professor of Nuclear Engineering (814-865-0040) [kni1@psu.edu] Ph.D., Bulgarian Academy of Sciences. Three-dimensional reactor core analysis; computational methods in reactor statics and dynamics; thermal-hydraulic reactor system transient modeling of power plants; coupled 3-D kinetics/thermal-hydraulic simulations and bench marking; core design and management. Professional Engineer.

Igor Jovanovic, Associate Professor (814-867-4329) [ijovanovic@psu.edu] Ph.D., University of California – Berkeley, 2001. Nuclear detection and nonproliferation; inertial confinement fusion; ultrafast and intense laser science and technology; remote sensing.

Seungjin Kim, Assistant Professor of Mechanical and Nuclear Engineering (814-867-1783) [sxx86@psu.edu] Ph.D., Purdue University, 1999. Thermal-hydraulics; Reactor Safety; modeling of two-phase flow and fluid particle interactions; interactions; interfacial area transport modeling; two-phase flow experiment and instrumentation; reactor system analysis code development and Very High Temperature Reactor.

Kenan Unlu, Director of Radiation Science and Engineering Center and Professor (814-865-6351) [kxu2@psu.edu] Ph.D., University of Michigan, 1989. Development and applications of nuclear analytical techniques; neutron depth profiling; cold neutron prompt gamma activation analysis; neutron radiography; neutron activation analysis; radiation detection; radiochemistry; nuclear forensic and nuclear security education.

Other Faculty

Brenden Heidrich, Research Associate / Senior Reactor Operator (814-865-6351) [heidrich@psu.edu] M.S. Pennsylvania State University (2003). Reactor physics and experimental design; operational characteristics of research reactors; economics of nuclear electricity generation; safety and reliability of light water reactors. Engineer-in-Training.

Darryl Farber, Assistant Professor of Science, Technology, and Society and Affiliate Assistant Professor of International Affairs. (814-865-3042) [dfarber@enr.psu.edu] Ph.D., The Pennsylvania State University, 1999. Policy and management of nuclear waste; scenario analysis and planning for engineering systems; nuclear ethics.

Barry Scheetz, Professor of Civil and Nuclear Engineering (814-865-3539) [se6@psu.edu] Ph.D., Materials. Radioactive waste disposal, cementitious and ceramic waste forms, x-ray diffraction.

Justin Watson, Research Associate, Applied Research Laboratory The Pennsylvania State University (814-863-6754) [jkw104@psu.edu] Ph.D., Pennsylvania State University, 2010. Computational fluid mechanics; nuclear reactor safety analysis; core design; system simulation; advanced numerical methods for multi-physics simulations; parallel computation for nuclear reactor safety analysis.

Nuclear Science and Engineering Research Centers

Advanced Multi-Phase Flow Laboratory (AMFL): To perform scaled experiments, model two-phase flow phenomena, develop instrumentation, improve the reactor system analysis, and to provide hands-on experience to both graduate and undergraduate students.

Reactor Dynamics and Fuel Management Group: The Reactor Dynamics and Fuel Management Research Group (RDFMG), was established at Penn State University (PSU) in the Spring 2000, to address the current demands for more accurate and efficient reactor analyses, which directly relate to safety and economic performance of current and next generations nuclear systems. The research performed by RDFMG is in the related areas of reactor physics, nuclear safety and fuel management. The work in each of these areas involves development, coupling, qualification and application of reactor analysis tools and focuses on integration of advanced multidimensional reactor design and safety analysis physics methodologies. Special emphasis is put on development of methods and computer codes for core design and on coupled space-time kinetics/thermal-hydraulic system modeling. Director: Dr. Kostadin Ivanov, Distinguished Professor of Nuclear Engineering,

Radiation Science and Engineering Center: The Radiation Science and Engineering Center (RSEC) is a unit under the College of Engineering and the Vice President for Research at Penn State. The RSEC is affiliated with the Department of Mechanical and Nuclear Engineering. The RSEC facilities include the Penn State Breazeale Reactor (PSBR), gamma irradiation facilities (In-pool Irradiator, Dry Irradiator, and Hot Cells), and various radiation detection and measurement laboratories. The PSBR is a 1 MW, TRIGA with moveable core in a large pool and with pulsing capabilities.

UNIVERSITY OF PITTSBURGH

Department of Mechanical Engineering and Materials Science

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Administrative Contact: John Metzger

412-624 5430

jdm75@pitt.edu

Website:<http://www.engr.pitt.edu/mechanical/index.html>

ABET Accreditation: Mechanical Engineering, Materials Science and Engineering

Distance Education Program

Offers Nuclear Engineering Courses Online

<http://www.engr.pitt.edu/mechanical/graduate/nuclear-certificate.html>

Nuclear Science and Engineering Faculty

John D. Metzger, Director of Nuclear Engineering, Research Associate Professor(412-624-5430) [jdm75@pitt.edu] Ph.D., University of New Mexico, 1989. Thermal systems; fluid flow; space nuclear power and propulsion systems; nuclear materials. Professional Engineer.

Minking Chyu, Leighton Orr Chair Professor and Chairman of Mechanical Engineering and Materials Science (412-624-9783) [mkchyu@pitt.edu] Ph.D., University of Minnesota, 1986. Heat and mass transfer; turbomachinery.

Daniel Cole, Assistant Professor (412-624-3069) [dgcole@pitt.edu] Ph.D. , Virginia Polytechnic Institute and State University, 1998. Dynamic systems; measurement and control. Professional Engineer.

Mark Kimber, Assistant Professor (412-624-8111) [mlk53@pitt.edu] Ph.D., Purdue University, 2008. Thermal hydraulics; electronics cooling.

Jung-Kun Lee, Assistant Professor (412-648-3395) [jul37@pitt.edu] Ph.D., Seoul National University, 2000. Nanotechnology; radiation effects on material properties; lon-beam synthesis of functional materials. Website: http://www.engr.pitt.edu/mems/people/facstaff/lee_jungkun.html

Jorg Wiezorek, Associate Professor (412-624-5430) [wiezorek@pitt.edu] Ph.D., University of Cambridge, Cambridge, UK, 1994. Materials science & engineering; physical metallurgy & metal physics; phase transformations; micro-characterization & analysis by diffraction and spectroscopy; transmission electron microscopy; scanning electron microscopy; mechanical behavior; microstructure engineering.

Other Faculty

David Aumiller, Adjunct Associate Professor (724-516-9437) [dla12@pitt.edu] Ph.D., The Pennsylvania State University, 1996. Two-phase flow and heat transfer; best-estimate plus uncertainty methods development; reactor safety code development.

Ken Balkey, Adjunct Lecturer (412-374-4633) [balkeykr@westinghouse.com] M.S., University of Pittsburgh, 1980. Nuclear codes and standards; risk assessment; mechanical component integrity; nuclear reactor pressure vessel integrity; piping design-by-analysis.

John Bartocci, Adjunct Lecturer (412-624-5430) [jtb51@pitt.edu] B.S., Massachusetts Institute of Technology. SRO Certified Instructor.

Bruce Berquist, Adjunct Associate Professor (412-476-6053) [berqb@comcast.net] Ph.D., University of Pittsburgh, 1979. Nuclear materials development.

Michael Burke, Adjunct Professor (412-256-1788) [Burkema@Westinghouse.com] Ph.D., University of Sheffield, UK, 1981. Performance of materials for nuclear plants particularly aging materials degradation.

Lawrence Corr, Adjunct Assistant Professor (412-624-5430) [lrcorr@pitt.edu] Ph.D.

Gary Elder, Faculty Lecturer (412-856-5967) [eldergg@westinghouse.com] Ph.D., University of Pittsburgh, 1982. Operating nuclear plants.

Vinny Esposito, Adjunct Professor (724-327-9593) [esposivj@westinghouse.com] D.Sc., University of Virginia, 1968. Nuclear core thermal hydraulics; safety analysis; fuel design; numerical analysis.

Larry Foulke, Adjunct Professor (412-653-0978) [lrf4@pitt.edu] Ph.D., Massachusetts Institute of Technology, 1967. Nuclear core and plant dynamics; public policy; space-time kinetics; space nuclear power. Professional Engineer.

Daniel Gill, Adjunct Lecturer (412-476-7714) [dfg3@pitt.edu] Ph.D., The Pennsylvania State University, 2009. Numerical particle transport theory; computational physics; numerical analysis.

David Griesheimer, Adjunct Assistant Professor (412-624-5430) [dpg20@pitt.edu] Ph.D., University of Michigan, 2004. Computational methods of radiation transport; Monte Carlo methods; multiphysics methods for reactor analysis; high performance and parallel computing.

David Haser, Faculty Lecturer (412-367-9177) [haserd@firstenergy.com] MBA, Youngstown State University, 2005. SRO License; safety culture; plant operation improvements; nuclear plant operations and safety. Professional Engineer.

David Helling, Faculty Lecturer (724-722-5301) [davidh179@gmail.com] B.S., Miami University, 1969. SRO License; nuclear power plant safety and operations; nuclear power plant instrumentation and control; curriculum integration and online learning.

Melissa Hunter, Adjunct Assistant Professor (412-624-5430) [mah180@pitt.edu] Ph.D.

Andrea Maioli, Guest Lecturer (412-374-3572) [maiolia@westinghouse.com] Ph.D., Politecnico di Milano, 2007. Probabilistic risk assessment and risk-informed application for nuclear power plants.

Donald Scheef, Faculty Lecturer (724-722-5318) [scheefdm@westinghouse.com] M.S., Purdue University, 1972.

Richard Siergiej, Adjunct Associate Professor (412-476-7587) [rrs27@pitt.edu] Ph.D., Lehigh University, 1992. Advanced instrumentation and control; wireless data transmission; solid-state physics; radiation effects on semiconductor devices.

PURDUE UNIVERSITY

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	38	31	27	35
Masters	12	8	11	6
PhD	7	3	6	5

Graduate Student Enrollment: 19 Masters/30 Ph.D.

ABET Accreditation: B.S. (N.E.)

Nuclear Science and Engineering Faculty

Ahmed Hassanein, Paul L. Wattelet Professor and Head of Nuclear Engineering (765-494-5742) [hassanein@purdue.edu] Ph.D., University of Wisconsin, Madison, 1982.
Website: <https://engineering.purdue.edu/NE>

Jean Paul Allain, Assistant Professor (765-496-9718) [allain@purdue.edu] Ph.D., University of Illinois Urbana-Champaign, 2001. Website: <https://engineering.purdue.edu>

Chan Choi, Professor (765-494-6789) [choi@purdue.edu] Ph.D., Southern Illinois University, 1973.
Website: <https://engineering.purdue.edu/NE>

Audeen Fentiman, Associate Dean of Graduate Education and Interdisciplinary Programs and Professor (765-494-1870) [fentiman@purdue.edu] Ph.D., The Ohio State University, 1982.
Website: <https://engineering.purdue.edu/NE>

Takashi Hibiki, Professor (765-496-9033) [hibiki@purdue.edu] Ph.D, Osaka University, 1990.
Website: <https://engineering.purdue.edu/NE>

Mamoru Ishii, Walter H. Zinn Distinguished Professor (765-494-4587) [ishii@purdue.edu], Ph.D., Georgia Institute of Technology, 1971. Website: <https://engineering.purdue.edu/NE>

Martin Lopez-De-Bertodano, Associate Professor (765-494-9169) [bertodan@purdue.edu] Ph.D., Rensselaer Polytechnic Institute, 1992. Website: <https://engineering.purdue.edu/NE>

Shripad T Revankar, Professor (765-496-1782) [shripad@purdue.edu] Ph.D., Karnatak University, 1983. Two-phase flow and heat transfer; reactor safety and thermal hydraulics; next generation reactors; high conductivity nuclear fuel; multiphase flow in packed beds (trickle bed reactors); multiphase instrumentation development; fuel cell -design and simulation; regenerative fuel cell; distributed energy generation; hydrogen generation -high temperature thermochemical reactions; hydrogen storage. Website: <http://cobweb.ecn.purdue.edu/~shripad/>

Rusi Taleyarkhan, Professor of Nuclear Engineering (765-494-0198) [rusi@purdue.edu] Ph.D.(1982); M.B.A(1980), Rensselaer Polytechnic Institute. Nuclear power engineering, safety, thermal-hydraulics; homeland security; combating nuclear terrorism via novel sensor development; Nano-to-macro scale applications of nuclear technology; acoustic inertial confinement fusion; radiation-matter interactions coupled with thermal hydraulics; metastable fluid technologies for nanoscale energetic burst generation; advanced nuclear particle detection technologies based on metastable fluid states; novel explosives and propellant systems for less-than-lethal and barrier penetration devices. Website: <https://engineering.purdue.edu/NE>

Lefteri Tsoukalas, Professor (765-496-9696) [tsoukala@purdue.edu] Ph.D., University of Illinois, 1989. Website: <https://engineering.purdue.edu>

Other Faculty

Jeffrey Brooks, Research Professor (765-496-3630) [brooksjn@purdue.edu] Ph.D., New York University, 1972. Plasma/surface interaction research -modeling, code development and validation, lab experimental studies, analysis of present fusion experiments, design of Plasma Facing Components in ITER and future fusion reactors. High/power surface interaction-modeling, analysis of issues for semiconductor, defense, high-energy physics, industrial applications. Integrated, peta-scale, multi-disciplinary computer simulation for fusion, biology, and other application. Website: <https://engineering.purdue.edu/NE>

Sivanandan Harilal, Research Assistant Professor (765-496-2233) [hari@purdue.edu] Ph.D., Cochin University of Science & Technology, India, 1998. Website: <https://engineering.purdue.edu/NE>

Gennady Miloshevsky, Research Assistant Professor (765-494-8618) [gennady@purdue.edu] Ph. D., Academic Scientific Complex "A.V. Luikov Heat and Mass Transfer Institute" of the National Academy of Sciences of Belarus, 1998. Atomic and plasma physics; interaction of radiation with matter; space radiation transfer; nuclear physics; computational physics; computational fluid dynamics; multiphase flows; medical radiation physics; Ion and water permeation in proteins; gating of protein channels and transporters; protein aggregation in lipid bilayer. Website: <https://engineering.purdue.edu/NE>

Valeryi Sizyuk, Research Assistant Professor (765-494-4217) [vsizyuk@purdue.edu] Ph.D., Belarus State University, Minsk Belarus, 1997. Reactor Fusion; Plasma. Prof. V. Sizyuk has extensive background in computational physics, plasma physics and hydrodynamics, computing technologies and their application in high volume manufacture. Website: <https://engineering.purdue.edu/NE>

RENSSELAER POLYTECHNIC INSTITUTE

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	46	49	30*	24*
Masters	1	2	3	0
PhD	2	0	2	6

**Enrollment volatility reflects transition of Navy Nuclear program to campus*

Graduate Student Enrollment: 5 Masters/23 Ph.D.

ABET Accreditation: Nuclear Engineering(BS)

Nuclear Science and Engineering Faculty

Yaron Danon, Professor and Director, Gaertner LINAC Laboratory (518-276-4008) [danony@rpi.edu] Ph.D., Rensselaer Polytechnic Institute, 1993. Accelerator technology and radiation applications; nuclear data and instrumentation.

Website: <http://www.rpi.edu/~danony>

Wei Ji, Assistant Professor (518-276-6602) [jiw2@rpi.edu] Ph.D., University of Michigan, 2007. Computational methodology development in radiation transport simulation in stochastic media; development of multi-physics models for core analysis of very high temperature gas-cooled reactors, including both prismatic and pebble-bed designs; neutron-induced radiation defect analysis on structural material based on coupled neutron transport and atomistic cascade simulations.

Website: <http://www.rpi.edu/~jiw2/>

Jie Lian, Assistant Professor (518-276-6081) [lianj@rpi.edu] Ph.D., University of Michigan, 2003. Nano-scale characterization and nanofabrication; ion beam techniques; advanced nuclear materials; Radiation effects

Li (Emily) Liu, Assistant Professor (518-276-8592) [liue@rpi.edu] Ph.D., Massachusetts Institute of Technology, 2005. Radiation damage; structure and dynamics of nano-materials and macro-molecules; dynamics of water; neutron scattering. Website: <http://www.rpi.edu/~liue/>

Bimal K Malaviya, Professor; Curriculum Coordinator (518-276-8578) [malavb@rpi.edu] Ph.D., Harvard University, 1964. Radioactive waste management; fission and fusion reactor physics and technology; biomedical applications; human factor engineering.

Michael Z. Podowski, Professor; Director of Center for Multiphase Research (518-276-4000) [podowm@rpi.edu] Ph.D., Warsaw University of Technology, 1972. Reactor dynamics and safety; applied mathematics; system stability; two-phase flow and heat transfer. Website: <http://www.rpi.edu/~podowm>

Timothy Wei, Professor and Department Head (518-276-6351) [weit@rpi.edu] Ph.D., University of Michigan, 1986. Biological flows; fluid-structure interactions; turbulence.

X. George Xu, Professor; Nuclear Engineering Program Coordinator; Director, Center for Engineering-Based Patient Modeling (518-276-4014) [xug2@rpi.edu] Ph.D., Texas A&M University, 1994. Monte Carlo simulation of nuclear systems for health/medical physics and reactor physics applications; Radiation measurement and dosimetry; Radiotherapy and diagnostic imaging; Advanced computational and physical phantom design. Website: <http://www.rpi.edu/~xug2>

Other Faculty

Robert C. Block, Professor Emeritus (518-276-6404) [blockr@rpi.edu] Ph.D., Duke University, 1956. Nuclear structure and data; Accelerator technology; Neutron reactions; industrial applications of radiation; radiation effects in microelectronics; nondestructive testing.

Peter F. Caracappa, Clinical Assistant Professor, Radiation Safety Officer (518-276-2212) [caracp3@rpi.edu] Ph.D., Rensselaer Polytechnic Institute, 2006. Operational health physics; internal and external dosimetry; radiation detection. Website: <http://www.rpi.edu/~caracp3>

Donald A. Drew, Chair, Mathematical Sciences; Eliza Ricketts Foundation Professorship of Mathematics; Professor of Mechanical, Aerospace, and Nuclear Engineering (518-276-6903) [drewd@rpi.rdu], Ph.D., Rensselaer Polytechnic Institute, 1970. Multiphase flows.

Mark J. Embrechts, Associate Professor (518-276-4009) [embrem@rpi.edu] Ph.D., Virginia Polytechnic Institute, 1981. Application of neural networks and fuzzy logic for manufacturing and process control; image recognition and classification with the aid of neural networks; neural networks, fractals, chaos, and wavelets for time-series analysis; data mining and computational intelligence.

Thomas C. Haley, Clinical Associate Professor; Director of Student Services (518-276-2255) [haley2@rpi.edu] Ph.D., Rensselaer Polytechnic Institute, 2000. Teaching award-winning blended/hybrid university courses.

Richard T Lahey, Jr., Professor Emeritus (518-276-6351) [laheyr@rpi.edu] Ph.D., Stanford University, 1971. Multiphase flow and boiling heat transfer; nuclear reactor thermal-hydraulics and safety analysis; sonofusion technology.

Don Steiner, Professor Emeritus (518-276-4016) [profsteiner@nycap.rr.com] Ph.D., Massachusetts Institute of Technology, 1967. Fusion systems analysis; plasma engineering; blanket design and overall fusion reactor design.

Timothy H Trumbull, Adjunct Assistant Professor; Director of Reactor Critical Facility (518-276-6351) [trumbt2@rpi.edu] Ph.D., Rensselaer Polytechnic Institute, 2004. Nuclear engineering education; critical facility operations and experimentation.

Wei Zhou, Clinical Associate Professor (518-276-6988) [zhouw3@rpi.edu] Ph.D., University of California at Berkeley, 1992. Nuclear waste management.

Nuclear Science and Engineering Research Centers

The **Gaertner LINAC Laboratory** has been engaged in active research continuously for over 45 years, and is centered around a multi-million dollar, high power, >60 MeV, L-band traveling wave, electron linear accelerator. Current areas of research at the LINAC include thermal reactor physics, photoneutron reactions, neutron cross sections, radiation effects in electronics, and production of medical isotopes.

The **Walthusen Critical Reactor Facility** is a low watt, fully functioning reactor for operational training and core physics studies and is available for student use in conjunction with modern nuclear radiation detection and characterization systems.

The **Center for Multiphase Research (CMR)** brings together faculty from the Schools of Engineering and Science. There are opportunities for both graduate and undergraduate students to participate in research at the CMR. Current areas of research include: Designing and performing two-phase flow experiments, including fundamentals of two-phase flow physics and system-type experiments. Examples include: two-phase flow turbulence, interfacial forces, bubble size distribution, phase separation, boiling heat, pressure drop in two-phase channels and loops, phase distribution in various channel geometries, gas distribution and heat transfer from ablating surfaces exposed to spreading liquid flows, multi-channel effects, flooding, two-phase flow transients and oscillations. Development of physically-based constitutive models of two-phase flow, and of component models of two-phase flow systems. Examples: mechanistic models of interfacial forces, a mechanistic model of void distribution in subcooled boiling, a widely used model of wall heat flux partitioning in subcooled boiling, a mechanistic model of critical heat flux (CHF). Application of Computational Multiphase Fluid Dynamics (CMFD) and other computational methods to simulate two-phase flow systems, including steady-state operation, transients/instabilities and 3-dimensional effects. Development of graphical tools, such as graphical user interface (GUI) for computer simulations.

The **Multiscale Science & Engineering Center (MSEC)** was established in October 2006 to create a collaborative environment of faculty to develop and transition Multiscale technologies to industry and government. Rensselaer is among the first universities to recognize that a systematic multiscale theory

combined with intensive technology transfer effort would propel the Institute's initiatives in numerous fields. One MSEC project is the VIP-Man Virtual Patient, with which researchers study multiscale human computing applications on radiation modeling in geometry modeling, radiation transport, treatment optimization, and X-ray CT imaging.

The Center for Engineering-Based Patient Modeling (CEPM) brings together engineers, biomedical scientists and clinicians who conceive and carry out synergistic projects that solve important clinical problems using physics-based and design-driven computational and experimental methods.

UNIVERSITY OF SOUTH CAROLINA

Mechanical Engineering, Nuclear Engineering Program

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803-777-1465

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Website: <http://www.me.sc.edu/nuclear/index.html>

	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	0	0	0	0
Masters	6	3	6	10
PhD	0	1	0	0

Graduate Student Enrollment: 52 Masters/13 Ph.D.

Distance Education Program

Offers Nuclear Engineering Courses and Degrees Online

<http://www.me.sc.edu/apogee/>

Nuclear Science and Engineering Faculty

Travis W. Knight, Assistant Professor and Director (803-777-1465) [twknight@sc.edu]

Ph.D., University of Florida, 2000. Advanced nuclear fuels and materials; nuclear safeguards; nuclear fuel cycle analysis; alternative uses of nuclear power including hydrogen; safety analysis; space nuclear power and propulsion. Website: <http://www.me.sc.edu/nuclear/faculty/knight/index.html>

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Ph.D., NCSU. Predictive maintenance; condition-based maintenance (CBM); design, manufacturing; health monitoring system. Professional Engineer. Website: <http://biomed.engr.sc.edu/bayoumi/>

Fanglin (Frank) Chen, Assistant Professor (803-777-4875) [chenfa@cec.sc.edu] Ph.D., Georgia Institute of Technology, 2001. Ceramic materials; dense membrane for hydrogen separation; Metal hydride for hydrogen storage; Tritium separation Website: <http://www.me.sc.edu/fs/chen.html>

Djamel Kaoumi, Assistant Professor (803-777-0926) [kaoumi@cec.sc.edu] Ph.D., Penn State, 2007.

Nuclear materials; structural materials; cladding, radiation effects; in-situ TEM; materials characterization, SEM, XRD, ion irradiation; mechanical testing.

Jamil Khan, Professor and Chair (803-777-1578) [khan@cec.sc.edu] Ph.D., Clemson, 1988. Heat

transfer; fluid dynamics. Website: <http://www.me.sc.edu/fs/khan.html>

Jeffrey H. Morehouse, Associate Professor (803-777-3017) [more@cec.sc.edu] Ph.D., Auburn University, 1976. Renewable energy. Professional Engineer.

Other Faculty

Luther L Hamm, Adjunct Professor (803-725-2520) [luther.hamm@srnl.gov] Ph.D., USC, 1982. Subsurface contaminant transport within the environment.

Valmore (Val) J. Loisel, Adjunct Professor (803-736-5588) [loiselle@cec.sc.edu] MSME w/ Minor NE, RPI, 1973. Retired.

Elwyn Roberts, Visiting Professor (803-777-2252) [robertse@cec.sc.edu] Ph.D., University of Sheffield, 1960. Materials performance in nuclear reactors; product design; manufacturing and concurrent engineering. Website: <http://www.me.sc.edu/fs/roberts.html>

William A Summers, Adjunct Professor, USC; Manager, Nuclear Energy Programs, Savannah River National Laboratory (803-725-7766) [william.summers@srnl.doe.gov] Ph.D., University of Pittsburgh 1985. Nuclear energy systems; advanced reactors; nuclear hydrogen production.

Nuclear Science and Engineering Research Centers

USC Nuclear Materials Laboratory: The USC Nuclear Materials Laboratory is equipped and licensed for working with uranium and thorium based fuels as well as non-radioactive materials routinely studied including high temperature alloys and ODS steels. The key facilities of this laboratory include high temperature furnaces for processing and testing of high temperature ceramics and metals, high vacuum systems, inert atmosphere glovebox, radiological hood, a customized fluidized-bed chemical vapor deposition coater for studies of coated particle fuels, a very high-temperature mechanical testing machine including a creep/tensile test stand, TEM sample holder for in-situ straining experiments, differential scanning calorimeter, thermogravimetric analyzer and equipment for characterization such as density, particle size, surface area, and porosity measurement and a full suite of metallographic sample preparation (grinder/polisher, electropolisher).

Thermal Hydraulics Laboratory: Thermal hydraulic test loops and laboratories are dedicated to studies of enhanced heat transfer, fluid flow, pressure drop and other phenomena associated with nuclear fuel rods and assemblies.

High Performance Computing: High performance computing facilities are used to analyze and model nuclear reactors, advanced fuel cycles, and advanced nuclear fuels and materials. Modeling and simulation codes and tools are employed for neutronic, thermal hydraulic, computational fluid dynamics (CFD), thermochemical, safety and risk, shielding, and finite element analyses. Sample code packages include MCNP5, SCALE6.0, ERANOS2.1, FACT-SAGE6.1, ABAQUS, Comsol Multiphysics, etc.

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	2	1	2	5

ABET Accreditation: Nuclear Engineering

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Musa B Danjaji, Associate Professor (803-516-4591) [mbdanjaji@scsu.edu] Ph.D., University of Illinois at Urbana-Champaign, 1993. Radiation effects in materials; radiation protection; nuclear batteries; research in alternative energy - biodiesel, hydrogen production; solar; wind turbine; hydrogen storage; fuel cells.

Kenneth C Okafor, Associate Professor (803-516-4758) [kokafor@scsu.edu] Ph.D., The Ohio State University, 1988. Alternative energy studies.

Other Faculty

Kara N. Beharry, Instructor (803-516-4923) [kbeharry@scsu.edu] M.S., University of Florida – Gainesville, 2009. Radiation protection.

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	26	28	36	36
Masters	8	13	16	14
PhD	1	2	3	5

Graduate Student Enrollment: 64 Masters/36 Ph.D.
ABET Accreditation: B.S. (N.E.)

Distance Education Program

Offers Nuclear Engineering Courses and Degree Online
<http://anywhere.tennessee.edu/>

Nuclear Science and Engineering Faculty

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Bethany L. Goldblum, Assistant Professor (865-974-5057) [goldblum@utk.edu] Ph.D., University of California. Research Interests: cross section measurements, nuclear forensics, homeland security.

Howard L. Hall, Governor's Chair Professor (865-974-2525) [hhall6@utk.edu] Ph.D., University of California, Berkeley. Research Interests: nuclear security applications, including proliferation detection, counterproliferation, detection of and response to radiological/nuclear threats, nuclear forensics, radiochemistry, and applications of nuclear-based methods to other security needs (such as explosives detection).
Website: http://hall-research.engr.utk.edu/Welcome_to_Professor_Halls_Research_Group.html

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Research interests: Radiation detection and measurement, nuclear security and safeguards, nuclear instrumentation, medical and health physics.

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Lawrence H. Heilbronn, Assistant Professor (865-974-2525) [lheilbro@utk.edu] Ph.D., Michigan State. Research interests: high-energy neutron production from heavy-ion interactions.

J. Wesley Hines, Professor (865-974-6561) [jhines2@utk.edu] Ph.D., Ohio State. Research interests: diagnostics and surveillance, artificial intelligence methods, expert systems and neural networks. Website: <http://www.engr.utk.edu/nuclear/Projects/JWH-Grants10-09.pdf>

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Lawrence W. Townsend, Professor (865-974-7569) [ltownsen@utk.edu] Ph.D., Idaho. Research interests: radiation physics, transport, shielding and risk assessment; Nuclear and Radiological engineering; Theoretical nuclear physics.

Belle R. Upadhyaya, Professor (865-974-7576) [bupadhya@utk.edu] Ph.D., University of California, San Diego. Research interests: dynamics, instrumentation and control, monitoring and diagnostics, advanced signal processing, next generation reactors, autonomous control of space reactors, nondestructive examination, reliability and maintainability engineering. Professional Engineer. Website: <http://web.utk.edu/~bru/>

Brian D. Wirth, Governor's Chair Professor (865-974-2552) [bdwirth@utk.edu] Ph.D., University of California. Research Interests: computational modeling and measurements of radiation effects in materials, molecular dynamics simulation, nano-materials.

Other Faculty

Ted Besmann, Adjunct Professor (865-574-6852) [besmann@ornl.gov] Ph.D., Pennsylvania State University, 1976. Materials research for advanced nuclear fuels, nuclear waste glass, fuel cell materials, high-temperature composites, nano-grain coatings, thermodynamics, and wear behavior

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David Cook, Adjunct Associate Professor (865-574-5690) [cookdh@ornl.gov] Ph.D., University of Tennessee, 1984. Reactor safety analysis, research reactor operations and safety, two-phase flow, isotope separations, and radiological source term modeling.

Mario Fontana, Research Professor (865-974-2525) [mfontana@utk.edu] Ph.D., Purdue. Research interests: power reactor safety (including response to potential terrorist attack, and advanced reactor systems. Professional Engineer.

Barry D. Ganapol, Research Professor (865-974-2525) [bganapol@utk.edu] Ph.D., University of California, Berkeley. Research interests: Deterministic and analytical transport theory.

Jess Gehin, Adjunct Associate Professor (865-576-5093) [gehinc@ornl.gov] Ph.D., Massachusetts Institute of Technology, 1992. Nuclear system design and analysis, reactor transient analysis, advanced simulation of light water reactors, and fuel cycle analysis.

Andrei Gribok, Research Assistant Professor (865-974-2525) [agribok@utk.edu] Ph.D., Moscow Inst of Biological Physics. Research interests: artificial intelligence techniques, surveillance and diagnosis, Inverse and ill-posed problems, Regularization theory.

Martin L. Grossbeck, Research Professor (865-974-2525) [mgrossbe@utk.edu] Ph.D., Illinois. Research interests: radiation effects in materials, burnable absorbers, research reactors, and ultra-high vacuum technology.

Robert Grove, Adjunct Associate Professor (865-574-4646) [grovere@ornl.gov] Ph.D., University of Michigan, 1996. Radiation transport methods development and applications, reactor physics, shielding, heavy water reactors, and naval reactors

Vincent Jodoin, Adjunct Associate Professor (865-574-0420) [jodoinvj@ornl.gov] Ph.D., Air Force Institute of Technology, 1994. Nuclear security, nuclear fallout modeling, radiological source term modeling, and nuclear forensics.

Jack Miller, Research Professor (865-974-2525) Ph.D., University of California. Research interests: space radiation protection and radiological engineering.

Hanna Moussa, Research Assistant Professor (865-974-2525) [hmoussa@utk.edu] Ph.D., Tennessee. Research Interests: radiation safety, Monte Carlo simulation of radiation transport.

Fred R. Mynatt, Research Professor (865-974-2525) [fmynatt@utk.edu] Ph.D., Tennessee. Research interests: radiation transport, isotope production and nuclear regulations.

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Nuclear Science and Engineering Research Centers /Collaborating Centers of Excellence

Reliability and Maintainability Center

Scintillation Materials Research Center

Thompson Cancer Survival Center

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	33	29	32	34
Masters	16	25	13	19
PhD	5	10	8	3

Graduate Student Enrollment: 85Masters/46 Ph.D.

Source: Official 12th Class Day Data, Office of Institutional Studies & Planning, Texas A&M University. These numbers include Health Physics and Nuclear Engineering

ABET Accreditation: Nuclear Engineering, Radiological Health Engineering

Nuclear Science and Engineering Faculty

Raymond J. Juzaitis, Department Head and Director (979-862-1956) [rjuzaitis@tamu.edu] Ph.D., University of Virginia, 1980. Nuclear security and nonproliferation.

Marvin L. Adams, Professor; Director INSER (979-845-4198) [mladams@tamu.edu] Ph.D., University of Michigan, 1986. Computational method development; nuclear power engineering- reactor analysis and design. Professional Engineer.

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Yassin A. Hassan, Professor and Associate Department Head (979-845-7090) [y-hassan@tamu.edu] Ph.D., University of Illinois, 1979. Nuclear power engineering; thermal hydraulics. Professional Engineer.

William H. Marlow, Professor; Undergraduate Program Advisor (979-845-2271)[w-marlow@tamu.edu] Ph.D., University of Texas at Austin, 1973. Nuclear materials and fuel cycles.

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Jim E. Morel, Professor; Graduate Academic Advisor; Director – CLASS (979-845-6072) [morel@tamu.edu] Ph.D., University of New Mexico, 1979. Computational method development.

Kenneth L. Peddicord, Professor; Director, Nuclear Power Institute (979-845-5802) [k-peddicord@tamu.edu] Ph.D., University of Illinois, 1972. Nuclear materials and fuel cycles. Professional Engineer.

John W. Poston, Professor (979-845-4175) [j-poston@tamu.edu] Ph.D., Georgia Institute of Technology, 1971. Health physics; radiation biology; medical physics.

Jean Ragusa, Associate Professor; Associate Director, Institute for Scientific Computation (979-862-2033) [ragusa@ne.tamu.edu] Ph.D., Institut National Polytechnique de Grenoble, France, 2001. Computational method development; nuclear power engineering; reactor analysis and design.

Dan Reece, Professor; Director, Nuclear Science Center (979-847-8946) [w-reece@tamu.edu] Ph.D., Georgia Tech, 1988. Health physics; radiation biology; medical physics; nuclear power engineering; reactor analysis and design.

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Other Faculty

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Cable Kurwitz, Lecturer (979-845-6126) [kurwitz@tamu.edu] Ph.D., Texas A&M University, 2009. Nuclear power engineering: space power; thermal hydraulics. Professional Engineer.

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Alexander Solodov, Lecturer (979-862-2628) [solodovaa@ornl.gov] Ph.D., Texas A&M University, 2007, Nuclear security and nonproliferation.

Galina Tsvetkova, Lecturer (979-845-4162) [tsvetkovag@tamu.edu] Ph.D., Texas A&M University, 2003. Health physics; radiation biology; medical physics.

Nuclear Science and Engineering Affiliated Research Centers

Center for Large-scale Scientific Simulations (CLASS): Dr. Jim Morel, Director. CLASS' objectives are to advance the state of the art in large-scale scientific simulations, and to lead the development of educational programs whose participants will be exceptionally well qualified for careers in scientific simulation. CLASS is working toward these objectives by bringing together key faculty members from several departments (including Mathematics, Computer Science, and Nuclear Engineering) and key national-lab practitioners to collaboratively design graduate programs that will provide the broad range of skills and knowledge that are needed by tomorrow's experts in scientific simulation. Website: <http://class.tamu.edu>

Institute for National Security Education and Research (INSER): Dr. Marvin Adams, Director. INSER develops and implements graduate-level education programs targeted at national security professionals. For example, it currently works with Texas A&M's Bush School of Government and Public Service to provide a Graduate Certificate program in National Security Affairs to selected employees from Lawrence Livermore National Laboratory. INSER also organizes and implements multidisciplinary research and development programs that are relevant to national security. Current programs include those targeted at Nuclear Nonproliferation; Scientific Simulation relevant to national security; and Homeland and International Security.

Nuclear Security Science and Policy Institute (NSSPI): Dr. William Charlton, Director. NSSPI is a joint TEES/TAMU center housed in the Nuclear Engineering Department and in collaboration with the George Bush School of Government and Public Service. The mission of NSSPI is to work collaboratively with national laboratories and other partners to develop and apply science and technology to detect, prevent, and reverse the proliferation of nuclear and radiological weapons and guard against nuclear terrorism; educate the next generation of leaders in the field of nuclear security sciences; and to study the policy implications of deploying new technologies. NSSPI provides research, education, and support in the area of nuclear security especially with respect to the interface between policy and technology. Website: <http://nsspi.tamu.edu>

Nuclear Science Center: This facility has a one-megawatt TRIGA swimming pool reactor that can be pulsed and a variety of other features including experimental laboratories, a large irradiation cell, beam ports, a thermal column and a pneumatic "rabbit" system. One of the best-equipped facilities of its type in the country, the facility is used in our laboratory courses as well as our research program.

Facilities:

Ions & Materials Facility
AGN-201M Teaching Reactor
Fuel Cycle & Materials Laboratory
Laser Diagnostics Multiphase Flow Laboratory
Micro-Beam Cell Irradiation Facility
Nuclear Heat Transfer Systems Laboratory
Radiation Detection Measurement Laboratory

UNIVERSITY OF TEXAS at AUSTIN

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Website: <http://www.me.utexas.edu/~nuclear/>

	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	n/a	n/a	n/a	n/a
Masters	3	6	7	7
PhD	3	10	3	1

Graduate Student Enrollment: 24 Masters/17 Ph.D.
ABET Accreditation: Mechanical Engineering

Distance Education Program

Offers Nuclear Engineering Courses and Degree Online
<http://www.me.utexas.edu/~nuclear/index.php/current-students/course-offerings>

Nuclear Science and Engineering Faculty

Sheldon Landsberger, Professor and Coordinator of Nuclear and Radiation Engineering Program (512-232-2467) [s.landsberger@mail.utexas.edu] Ph.D., University of Toronto, 1982. Radioactive and solid waste management; neutron activation analysis; Compton suppression low-level counting; air pollution; long distance air transport of heavy metals; radiation exposure; materials damage. Website: <http://www.me.utexas.edu/~nuclear/~landsberger>

Stephen R.F. Biegalski, Assistant Professor and Director Nuclear Engineering Teaching Lab (512-232-5380) [biegalski@mail.utexas.edu] Ph.D., University of Illinois, 1996. Nuclear analytical methods; nuclear instrumentation; nuclear reactor design; neutron radiography; analysis of environmental media with nuclear methods; modeling of environmental pathways; reactor operations and reactor safety analysis. Professional Engineer. Website: <http://www.me.utexas.edu/~nuclear/index.php/faculty-and-staff/89-steve-biegalski>

Mark Deinert, Assistant Professor (512-471-7916) [mdeinert@mail.utexas.edu] Ph.D., Cornell University, 2003. Applied nuclear physics, actinide transmutation in light-water reactors, advanced nuclear fuel cycles, transport theory, energy economics, thermal fluid transport in porous media within repository environments reaction diffusion processes. Website: <http://www.me.utexas.edu/~nuclear/~deinert>

Dale Klein, Professor, Associate Director, Energy Institute, and Associate Vice President of Research (512-499-4709) [dale.klein@ mail.utexas.edu] Ph. D., University of Missouri-Columbia, 1977. Radioactive waste disposal; thermal analysis of nuclear shipping containers; nuclear weapon dismantlement; thermal-hydraulics
Website: <http://www.me.utexas.edu/~nuclear/index.php/faculty-and-staff/93-dale-klein>

Erich Schneider, Assistant Professor (512-232-5412) [eschneider@mail.utexas.edu] Ph.D., Cornell University, 2002. Computational modeling and simulation of nuclear system; nuclear systems engineering; research of nuclear reactor technologies; nuclear fuel; the sustainability of nuclear power; modeling the transport of neutrons and other subatomic particles to study the performance of nuclear fuel in very intense radiation fields such the next generation of nuclear reactors.; particle physics transport modeling in a NASA-sponsored project to study the interactions of heavy ions from solar radiation with microelectronic satellite components; anti-proliferation measures in the civilian nuclear power industry; modeling the effectiveness of proliferation countermeasures in gas centrifuge enrichment facilities.
Website: <http://www.me.utexas.edu/~nuclear/index.php/faculty-and-staff/90-erich-schneider>

Other Faculty

Ofofike A. Ezekoye , Professor (512-471-3085) [dezekoye@mail.utexas.edu] Ph.D., Univ. of California, Berkeley, 1991. Fire modeling; engine modeling; fundamental flame processes; combustion; heat transfer; aerosols. Website: <http://www.me.utexas.edu/~nuclear/index.php/faculty-and-staff/91-dk>

Kendra M Foltz-Biegalski, Research Engineer, Lecturer (512-418-0157) [kmfb98@hotmail.com] Ph. D., University of Illinois, 1988. Radiation detection and measurement; advanced algorithms; analytical modeling; radioxenon sampling; monitoring; data analysis; radiochemical separation techniques; software and GUI development non-proliferation; atmospheric radionuclide identification; analytical modeling. Professional Engineer.
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John R. Howell, Professor (512-471-3095) [jhowell@mail.utexas.edu] Ph.D., Case Institute of Technology (now Case Western Reserve University), 1962. Radiative energy transfer; heat transfer in energy systems; heat transfer with combined modes; Monte Carlo Methods; inverse analysis techniques. Website: <http://www.me.utexas.edu/~nuclear/index.php/faculty-and-staff/92-john-howell>

Elmira Popova, Professor (512-471-3078) [elmira@mail.utexas.edu] Ph.D., Case Western Reserve University, 1995. Risk informed asset management for electric power generation; Uncertainty quantification; Energy pricing and load forecast. Website: <http://www.me.utexas.edu/~popova/>

Mitch Pryor (512-471-5182) [mpryor@mail.utexas.edu] Ph.D., The University of Texas, Austin, 2002. Decision-making, operation, and control of robotic systems.
Website: http://www.robotics.utexas.edu/people/mitch_pryor/index.htm

Nuclear Science and Engineering Research Centers

Nuclear Engineering Teaching Laboratory (NETL): Constructed in 1986 at the J.J. Pickle Research Campus, a separate research center of the University of Texas, featuring a 1 Megawatt TRIGA reactor. Areas of study include: health physics, radiation engineering, research reactor beam port experiments, radioactive waste management and reactor and computational nuclear engineering.

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	0	0	0	0
Masters	1	2	2	1
PhD	0	1	0	0

Graduate Student Enrollment: 4 Masters/5 Ph.D.

Nuclear Science and Engineering Faculty

Tatjana Jevremovic, EnergySolutions Presidential Endowed Chair Professor and Director of Utah Nuclear Engineering Program (801-587-9696) [Tatjana.Jevremovic@utah.edu] Ph.D., The University of Tokyo, 1993. Nuclear reactor simulation and modeling; radiation transport modeling and applications; nuclear forensics and nuclear safeguards; nuclear materials detection, simulation and modeling; nuclear medicine; radiation in space; advanced visualizations of nuclear engineering software with accelerations; environmental engineering.

Haori Yang, Assistant Professor (801-587-3066) [haoriyang@gmail.com] Ph.D., University of Michigan, Ann Arbor, 2009. Detector design and development, investigation of active interrogation technology and applications, radiation imaging systems, waste assay technologies, radiation monitoring systems, nuclear instrument and control system. Website: www.nuclear.utah.edu

Other Faculty

Dong-Ok Choe, Assistant Research Professor/TRIGA Reactor Supervisor (801-587-3066) [d.choe@utah.edu] Ph.D. University of Utah, 2000. Reactor physics, dose reconstruction, fission track analysis. Website: www.nuclear.utah.edu

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ABET Accreditation: Mechanical Engineering

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Graduate Student Enrollment: 25 Masters/1 Ph.D.
ABET Accreditation: B.S. in Mechanical Engineering

Nuclear Science and Engineering Faculty

Sama Bilbao y Leon, Associate Professor and Director of Nuclear Engineering Programs (804-828-2570) [sbilbao@vcu.edu] Ph.D., University of Wisconsin, Madison, 1999. Experimental and computational thermal-hydraulics, two-phase flow and heat transfer for nuclear applications.

Brian Hinderliter, Associate Professor (804-827-3517) [bhinderliter@vcu.edu] Ph.D. Nuclear engineering; radiation shielding.

James T. McLeskey, Associate Professor (804-827-7008) [jtmcleskey@vcu.edu] Ph.D. Energy conversion systems.

Gary Tepper, Professor and Interim Chair (804-827-4079) [gctepper@vcu.edu] Ph.D. Radiation detection; nanoscale materials.

Amy Throckmorton, Assistant Professor (804-827-2278) [althrock@vcu.edu], PhD. Medical devices; fluid dynamics.

Other Faculty

Ross Anderson, Associate Professor (804-827-4000) [rcanderson@vcu.edu] Ph.D. Nuclear Engineering.

Nuclear Science and Engineering Research Centers

Specialized nuclear engineering laboratories include a reactor simulator and a table-top visible reactor. Other relevant research centers within the School of Engineering include a Nanomaterials Characterization Center (NCC) and the Virginia Microelectronics Center (VMC).

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	7/06-7/07	07/07-06/08	07/08-6/09	7/09-6/10
B.S.	24	19	17	19
Masters	22	18	15	15
PhD	6	9	8	8

Graduate Student Enrollment: 22 Masters/53 Ph.D.

ABET Accreditation: Nuclear Engineering

Distance Education Program

Offers Nuclear Engineering Courses Online

Nuclear Science and Engineering Faculty

Michael L Corradini, Professor and Department Head (608-263-1646) [corradini@engr.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1978. Multi-phase fluid mechanics and heat transfer; fission and fusion reactors; nuclear reactor safety; severe accident phenomena; power plant operation and design; energy policy; nuclear fuel cycle. Professional Engineer.

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Matt S. Allen, Professor (608-890-1619) [msallen@engr.wisc.edu] Ph.D., Georgia Institute of Technology, 2005. Dynamics, vibrations and controls; micro/nano systems; uncertainty and stochastic systems; linear/nonlinear system identification; model reduction/substructuring.

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Todd R. Allen, Professor (608-265-4083) [allen@engr.wisc.edu] Ph.D., University of Michigan, 1997. Engineering physics; materials science and engineering; materials science program; nuclear engineering and engineering physics; Wisconsin Institute of Nuclear Systems.

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Vicki M. Bier, Professor (608-262-2064) [bier@engr.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1981. Technological hazards, risk analysis, decision analysis, operations research.

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Riccardo Bonazza, Professor (608-265-2337) [bonazza@engr.wisc.edu] Ph.D., California Institute of Technology, 1992. Experimental fluid mechanics and heat transfer; impulsive unsteady phenomena; shock tube applications; laser and X-ray imaging & measuring techniques. Website: <http://www.engr.wisc.edu/ep/faculty/>

Wendy C. Crone, Professor (608-345-0547) [crone@engr.wisc.edu] Ph.D., University of Minnesota, 1998. Experimental mechanics of materials; characterization of materials such as shape memory alloys, hydrogels, and biomaterials; therapeutic medical devices. Website: <http://www.engr.wisc.edu/ep/faculty/>

Ray J. Fonck, Professor (608-263-7799) [fonck@engr.wisc.edu] Ph.D., Princeton, 1978. Plasma & fusion science and technology; plasma turbulence; burning plasmas; tokamaks; alternative fusion schemes; atomic physics and applied optics; high temperature plasma diagnostics. Website: <http://www.engr.wisc.edu/ep/faculty/>

Chris C. Hegna, Professor (608-263-0810) [hegna@engr.wisc.edu] Ph.D., Columbia, 1989. Theoretical plasma physics; fusion science; magnetic confinement of plasmas; magnetohydrodynamics. Website: <http://www.engr.wisc.edu/ep/faculty/>

Douglas L. Henderson, Professor (608-263-0808) [henderson@engr.wisc.edu] Ph.D., University of Wisconsin, Madison, 1987. Reactor physics; radiation transport; fusion reactor technology; nuclear waste. Website: <http://www.engr.wisc.edu/ep/faculty/>

Noah Hershkowitz, Professor (608-263-4970) [hershkowitz@engr.wisc.edu] Ph.D., Johns Hopkins, 1966. Plasma etching; plasma-aided manufacturing; basic plasma physics; ICRF effects; laboratory space plasma physics. Website: <http://www.engr.wisc.edu/ep/faculty/>

Gerald L. Kulcinski, Professor (608-263-2308) [kulcinski@engr.wisc.edu] Ph.D., University of Wisconsin, Madison, 1965. Magnetic/inertial fusion reactor systems studies; radiation damage and nuclear materials; lunar mining of helium-3. Website: <http://www.engr.wisc.edu/ep/faculty/>

Franklin K Miller, Professor (608-263-2479) [fkmiller@wisc.edu] Ph.D., Massachusetts Institute of Technology, 2005. Cryogenics; thermodynamics of Superfluid 3He-4He mixtures; Sub-Kelvin cooling for space science; energy systems. Also Mechanical Engineering.

Website: <http://www.engr.wisc.edu/ep/faculty/>

Dane D Morgan, Professor (608-265-5879) [ddmorgan@wisc.edu] Ph.D., University of California-Berkeley, 1998. Computational materials science for materials design; ab initio electronic structure methods and multiscale techniques for large time / length scales and thermokinetics. Also Materials Science and Engineering. Website: <http://www.engr.wisc.edu/ep/faculty/>

Gregory A. Moses, Professor (608-265-6567) [moses@engr.wisc.edu] Ph.D., University of Michigan, 1976. Fusion reactor design; technology enhanced learning; radiation hydrodynamics; computational engineering; nuclear reactor physics. Website: <http://www.engr.wisc.edu/ep/faculty/>

John M Pfothauer, Professor (608-263-4082) [pfot@engr.wisc.edu] Ph.D., University of Oregon, 1984. Cryogenics; low temperature refrigeration; applied superconductivity. Website: <http://www.engr.wisc.edu/ep/faculty/>

Carl R Sovinec, Professor (608-263-5525) [sovinec@engr.wisc.edu] Ph.D., University of Wisconsin, Madison, 1996. Computational plasma physics; computational fluid dynamics; magnetohydrodynamics; numerical methods for partial differential equations. Website: <http://www.engr.wisc.edu/ep/faculty/>

Izabela Szlufarska, Professor (608-265-5878) [izabela@engr.wisc.edu] Ph.D., University of Tennessee, 2004. Atomistic simulations: Massively parallel molecular dynamics and ab initio-based simulations. -- Nanocrystalline materials: Computational design of materials with superior mechanical properties; Grain boundary nanoengineering; Nanoindentation. -- Fundamentals of friction & adhesion at the nanoscale -- Coupling between surface/interface chemistry and mechanical properties: Materials for MEMS applications in extreme environments. -- Nano-bio-mechanics: Viscoelastic response of mechanical bio-sensors. -- Materials for nuclear applications: Radiation damage resistance, multi-scale modeling of defect and impurity kinetics. Website: <http://www.engr.wisc.edu/ep/faculty/>

Bruce R. Thomadsen, Professor, (608-263-4183) [brthomad@wisc.edu] Ph.D., University of Wisconsin, Madison, 2001. Biomedical engineering; human oncology; medical physics brachytherapy physics; radiation dosimetry; patient safety biomedical engineering center for translational research; Center for Human Performance and Risk Analysis. Website: <http://www.engr.wisc.edu/ep/faculty/>

Mario F. Trujillo, Professor. (608-262-0944) [mtrujillo@wisc.edu] Ph.D., University of Illinois, 2001. Thermodynamics, fluid dynamics computational fluid dynamics. Also Engine Research Center, Mechanical Engineering. Website: <http://www.engr.wisc.edu/ep/faculty/>

Ray Vanderby, Professor (608-263-9593) [vanderby@ortho.wisc.edu] Ph.D., Purdue, 1975. Tissue mechanics (bone, ligament, tendon, and cartilage); tissue engineering; connective tissue healing; orthopedic biomechanics. Professional Engineer. Website: <http://www.engr.wisc.edu/ep/faculty/>

Francesco Volpe, Professor (608-262-4854) [volpe@engr.wisc.edu] Ph.D., Max-Planck Institute, 2003. Plasma physics and magnetic confinement fusion; microwave heating; current drive and diagnostics; magnetohydrodynamic instabilities and their control. Website: <http://www.engr.wisc.edu/ep/faculty/>

Fabian Waleffe, Professor (608-263-3269) [waleffe@engr.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1989. Math; fluid dynamics; bifurcations and turbulence; scientific computing.
Website: <http://www.engr.wisc.edu/ep/faculty/>

Paul P. H. Wilson, Professor (608-263-0807) [wilsonp@engr.wisc.edu] Ph.D., University of Wisconsin, Madison, 1999. Nuclear fuel cycles; transmutation/depletion/activation; proliferation analysis; energy policy; Monte Carlo methods; reactor core design & analysis.
Website: <http://www.engr.wisc.edu/ep/faculty/>

Robert J. Witt, Professor (608-263-2760) [witt@engr.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1987. Computational methods in fluid and solid mechanics.
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Other Faculty

Leslie M. Smith, Professor (608-262-3852) [lsmith@math.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1988. Statistical physics, turbulence and turbulence modeling for engineering and geophysical applications; applied mathematics, stability theory and fluid dynamics; field theoretical techniques, the dynamic renormalization group and universality in complex systems.
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Nuclear Science and Engineering Research Centers

Center for Human Performance and Risk Analysis

Center for Plasma-Aided Manufacturing

Center for Plasma Theory and Computation

Energy Frontiers Research Center

Fusion Technology Institute

Pegasus Plasma Experiment

Synchrotron Radiation Center

UW Energy Institute

Wisconsin Institute of Nuclear Systems

Wisconsin Public Utility Institute

Wisconsin Shock Tube

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RESEARCH TRAINING AND FISSION REACTORS IN NORTH AMERICA

UNIVERSITY OF CALIFORNIA, DAVIS

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UNIVERSITY OF CALIFORNIA, IRVINE

TRIGA-MkI, 250 kW - Dr. George E. Miller, Director
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COLORADO SCHOOL OF MINES

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202 NSC, P.O. Box 118300
Gainesville, FL 32611-8300
(352) 392-1408 ext. 317/FAX: (352) 392-3380; vernet@ufl.edu

IDAHO STATE UNIVERSITY

AGN-201P-103, 0.005 kW – Dr. John S. Bennion, Director
Lillibridge Engineering Laboratory, Pocatello, ID 83209-8060
(208) 282-3351/FAX: (208) 282-4538; jbenion@isu.edu

KANSAS STATE UNIVERSITY

TRIGA-MkII, 250 kW – Dr. Jeff Geuther, Director
Nuclear Engineering Department, Ward Hall, Manhattan, KS 66506-2503
785-532-6657; geuther@ksu.edu

UNIVERSITY OF MARYLAND

TRIGA 250 kW – Dr. Mohamad Al-Sheikhly, Director
Nuclear Engineering Program, Department of Materials & Nuclear Engineering, College Park, MD 20742
(301) 405-7448/ FAX: (301) 314-9467
mohamad@eng.umd.edu

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

MITR, 5000 kW - Prof. David E. Moncton
Nuclear Reactor Laboratory, 138 Albany Street, Cambridge, MA 02139
(617) 253-4202/FAX: (617) 253-7300; jbernard@mit.edu

UNIVERSITY OF MASSACHUSETTS, LOWELL

1 MW Pool type reactor - Mr. Leo Bobek, Director
Radiation Laboratory, 1 University Avenue, Lowell, MA 01854
(978) 934-3366/FAX: (978) 934-4067
leo_bobek@uml.edu

UNIVERSITY OF MISSOURI, COLUMBIA

MURR, 10,000 kW – Ralph Butler, Interim Director
Research Reactor Center, Columbia, MO 65211
(573) 882-4211/FAX: (573) 882-6360
butlerra@missouri.edu; <http://www.missouri.edu/~murrwww/>

MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY

UMRR 200 kW – Dr. Arvind Kumar, Director
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(William E. Bonzer, Manager) (573) 341-4236 / FAX: (573) 341-4237; webonzer@mst.edu

ECOLE POLYTECHNIQUE DE MONTREAL

SLOWPOKE 20 kW - Cornelia Chilian, Director of SLOWPOKE laboratory
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UNIVERSITY OF NEW MEXICO

AGN-201M-112, 0.005 kW – Dr. Robert Busch, Reactor Supervisor
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(505) 277-5431/FAX: (505) 277-5433; busch@unm.edu

NORTH CAROLINA STATE UNIVERSITY

PULSTAR 1000 kW – Dr. Ayman I. Hawari, Director
Department of Nuclear Engineering, Campus Box 7909, Raleigh, NC 27695
(919) 515-4598/FAX: (919) 513-1276; ayman.hawari@ncsu.edu

OHIO STATE UNIVERSITY

OSURR, 500 kW – Dr. Thomas E. Blue, Director
E420 Scott Laboratory, 201 West 19th Avenue, Columbus, OH 43210-1142
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Point of Contact for the OSU Nuclear Reactor Lab: Andrew Kauffman, Assoc. Director
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OREGON STATE UNIVERSITY

TRIGA MkF 1100 kW – Dr. Stephen Binney, Director
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binneys@rc.orst.edu

THE PENNSYLVANIA STATE UNIVERSITY

TRIGA, 1000 kW – Prof. Kenan Unlu
Breazeale Nuclear Reactor, Radiation Science and Engineering Center
University Park, PA 16802-2301; (814)
865-6351/FAX: (814) 863-4840; k-unlu@psu.edu

PURDUE UNIVERSITY

Nuclear Reactor, 1.0 kW – Jere H. Jenkins, Director
School of Nuclear Engineering, 400 Central Drive West Lafayette, IN 47907
(765) 496-3573; jere@ecn.purdue.edu

REED COLLEGE

Triga-MkI, 250 kW – Mr. Stephen Frantz, Director
Reed Reactor Facility, Portland, OR 97202-8199
(503) 777-7222/FAX: (503) 777-7274
reactor@reed.edu

RENSSELAER POLYTECHNIC INSTITUTE

Critical Facility, 0.1 kW – Dr. Glenn Winters, Director
Nuclear Engineering and Engineering Physics Program, 110 Eighth Street, Troy, NY 12180-3590

RHODE ISLAND NUCLEAR SCIENCE CENTER

RINSC, 2000 kW – Mr. Terry Tehan, Director
16 Reactor Road, Narragansett, RI 02882-1197
(401) 789-9391/FAX: (401) 782-4201
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ROYAL MILITARY COLLEGE OF CANADA

SLOWPOKE-2 Facility
Kathy S. Nielsen, Director
613-541-6000, ext. 6385; nielsen-k@rmc.ca

TEXAS A&M UNIVERSITY

AGN-201, 0.005 kW Dr. William Charlton, Reactor Supervisor

Department of Nuclear Engineering, 3133 TAMU, College Station, TX 77843-3133
wcharlton@tamu.edu
One-megawatt TRIGA (Testing, Research, Isotopes, General Atomics) reactor
Dr. Daniel Reece, 979.845.7551
Department of Nuclear Engineering, 3133 TAMU, College Station, TX 77843-3133
reece@tamu.edu

UNIVERSITY OF TEXAS AT AUSTIN

TRIGA-MkII, 1100 kW – Paul Michael Whaley, Associate Director
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UNIVERSITY OF UTAH

TRIGA-MkI, 100 kW - Dr. Tatjana Jevremovic, EnergySolutions Presidential
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WASHINGTON STATE UNIVERSITY

Modified TRIGA, 1000 kW – Dr. Gerald E. Tripard, Director
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